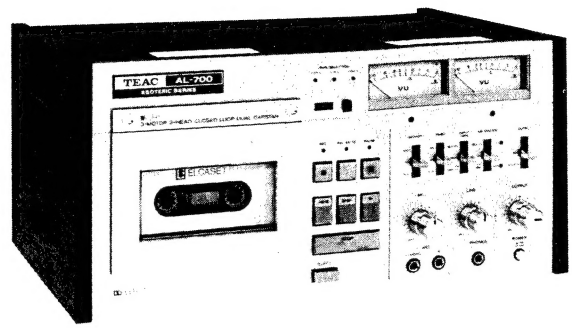
TEAC®

SERVICE MANUAL



ELCASET

AL-700

Stereo ELCASET Deck with Dolby* System

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* dbx noise reduction system made under license from dbx, Incorporated. The word dbx and the Symbol are trademarks of dbx, Incorporated.

ELCASET

This mark is used on all products manufactured under the ELCASET standard.

TEAC CORPORATION

51032000

1. GENERAL DESCRIPTION

The TEAC AL-700 is a tape deck which employs a new tape format utilizing 1/4" tape run at 3-3/4 ips (similar to open reel decks). The transport section is different than the compact cassette type system, although there are also some similarities. The ELCASET tape also affords a variety of tape sensing and selection possibilities, such as, Automatic Bias and EQ selection, end of tape sensing, record protection and others.
Basically maintenance and repair of this deck is very similar to that of the compact cassette decks. By following the procedures as given in this manual, the technician should experience little difficulty in maintaining the AL-700 in top condition. However, if any of the procedures seem difficult to accomplish or are unclear to the reader, please feel free to contact TEAC CORPORATION at one of the addresses given on the back cover of this manual or contact your local TEAC Factory Service Center.

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ELCASET INFORMATION-1

Special Features

- The ELCASET uses 6.3mm (¼") wide tape and runs at 9.5cm/s (3¾ ips). The tape width is the same as that used for open reel decks and the speed is twice that of the compact cassette standard. This combination results in increased dynamic range, with decreased wow and flutter, fewer drop-outs and less level variations and noise. All these special improvements in characteristics are combined.
- New cassette shell construction.

The simple ELCASET shell form, similar to the compact cassette, has the tape nicely stored within the shell. There is no worry about touching the tape surface, and no damage to the tape itself. Therefore, tape handling is very convenient. Once, this ELCASET shell is installed, the influence of open reel tape is demonstrated. That is, the equivalent of the margin allowed by 3 head operation becomes obtainable. The shell construction is designed so that the tape can be pulled out of the cassette shell and allows the tape heads and guides to be fixed and stable tape movement to be obtained. This increased improvement in performance becomes a big advantage.

- Interchangeable Monaural or Stereo track configuration.

Both sides of the ELCASET tape, Side A and Side B, can be used. The tape track position is divided from the center of the tape into the upper and lower half for monaural or stereo recording as shown in Fig. 2.

- Standardized Control tracks

These control tracks can be used to preprogram control information to help locate the exact starting point of a certain section on the tape or may be reserved for future developments.

- Record or Playback times (round-trip) are 60 min (LC-60) and 90 min (LC-90).
- Tape Protective Lid

When the tape is stored inside the shell, the installed front lids will protect the tape.

- Reel Locking Device

The shell has reel locking device installed which will lock the tape reels to prevent tape loosening due to vibration while carrying the tape. When the shell is installed in the machine (deck) the locking device will be automatically released to allow the tape to be safely pulled from the shell.

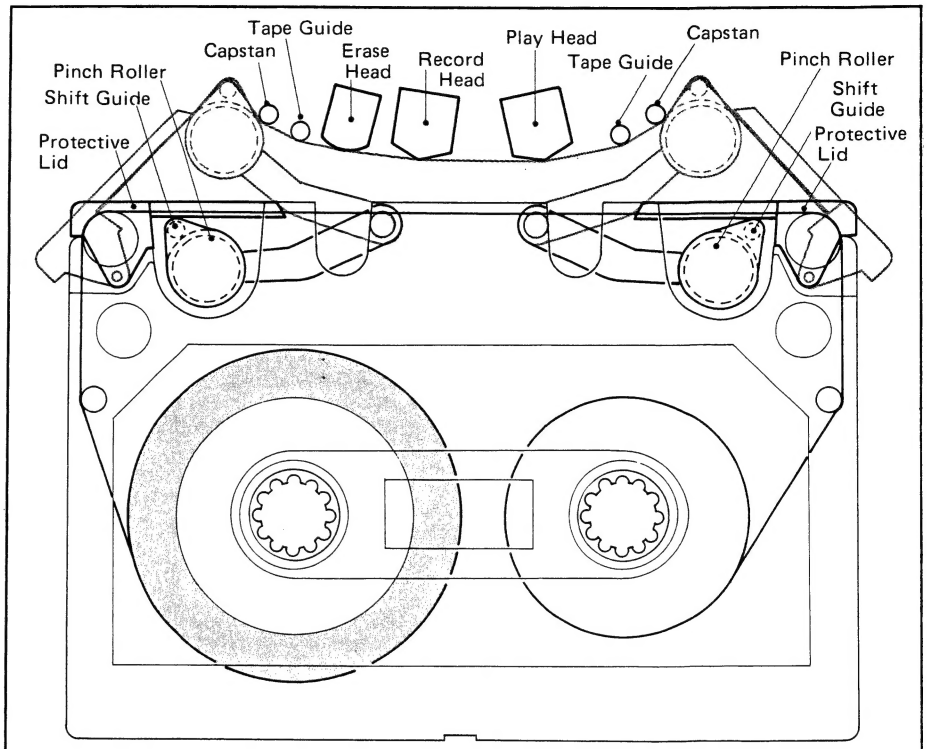


Figure 1 ELCASET Construction (Closed loop, dual capstan type tape movement)

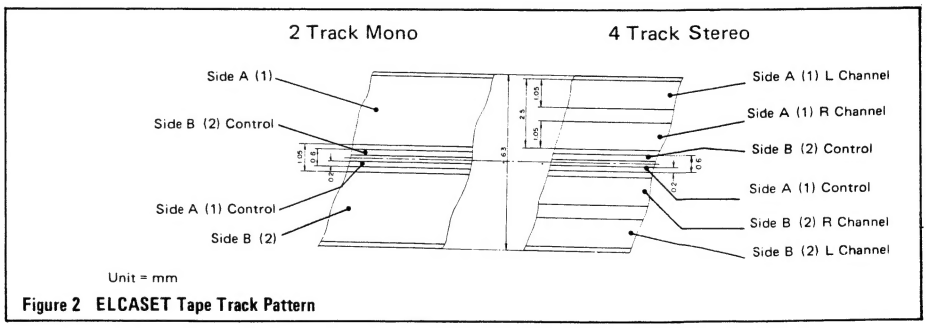


Figure 2 ELCASET Tape Track Pattern

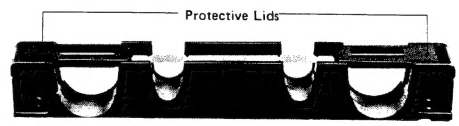


Figure 3

Figure 4

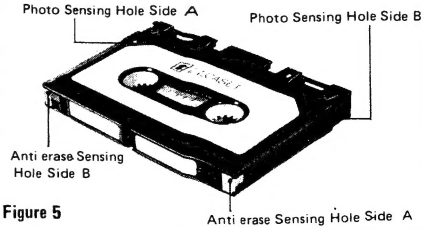


Figure 5

ELCASET INFORMATION-2

ELCASET INFORMATION

• Anti-erase Sensing function
The so called "erase protection tabs" used in compact cassettes, once removed, have to be painstakingly replaced with a piece of tape to allow recording. This was very troublesome. The ELCASET is restored by an included "safety block" mechanism whose usage is very simple.

Caution Points

Handling of the ELCASET tape
• Anti-erase Sensing feature
Prior to recording be sure to check the anti-erase Sensing mechanism. With the desired side of the tape facing up, if the right side anti-erase sensing mechanism (shown by the ⬇) is pushed in, recording cannot be done. That is, accidental recording or erasing of an important pre-recorded tape is prevented. To record, set the slide back to its original position. (See Fig. 10 & 11).
• Is the tape loose?
Prior to recording or playing of the tape confirm that the tape is not loose. The included accessory tape driver may be used to remove tape slack. As shown in Fig. 12, turn the reel hub in the direction shown by the arrow. If a loose tape is used, not only will the tape be damaged, but the deck also may become inoperative.
• The ELCASET, as shown in Fig. 13, should be handled using the parallel section. This makes it easy to install and remove the tape from the deck.
• Do not touch the coated side of the tape directly with your hands. The tape protective front lid, reel locking device, etc., should not be carelessly moved as this may cause damage to the tape.
• Do not lay the tape in dirty or dusty areas. Store the tape in its case.
• Do not drop the tape or subject it to strong shock.
• Avoid using or storing in high temperature, high humidity or direct sunlight areas, and places where there are strong magnetic fields.

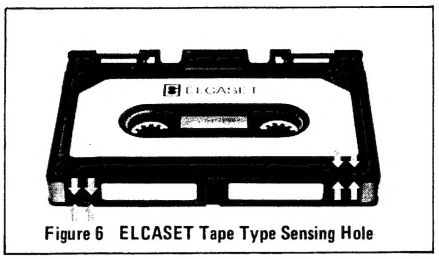


Figure 6 ELCASET Tape Type Sensing Hole

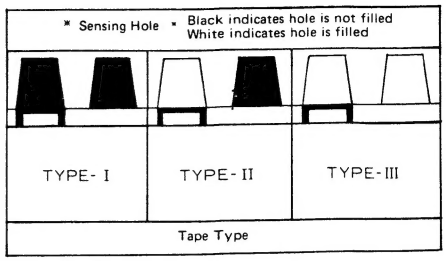


Figure 7

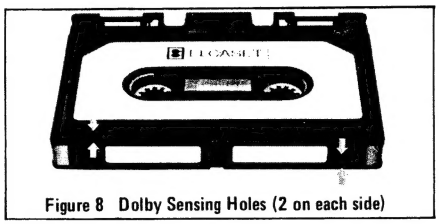
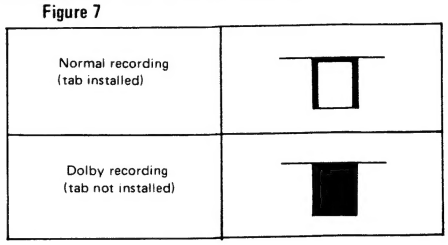


Figure 8 Dolby Sensing Holes (2 on each side)



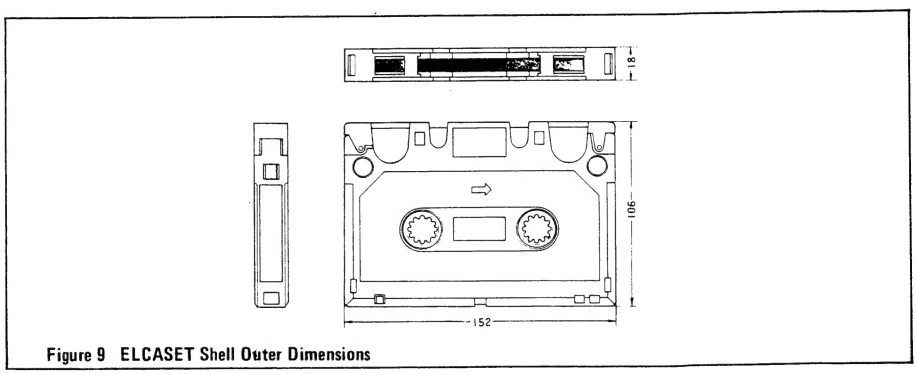


Figure 9 ELCASET Shell Outer Dimensions

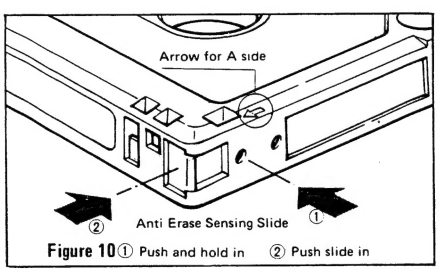


Figure 10 ① Push and hold in ② Push slide in

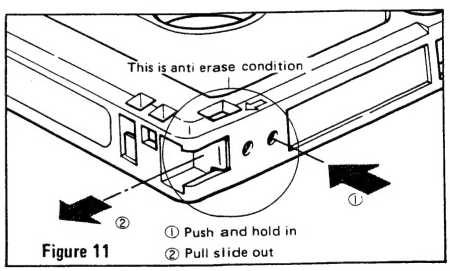


Figure 11 ① Push and hold in ② Pull slide out

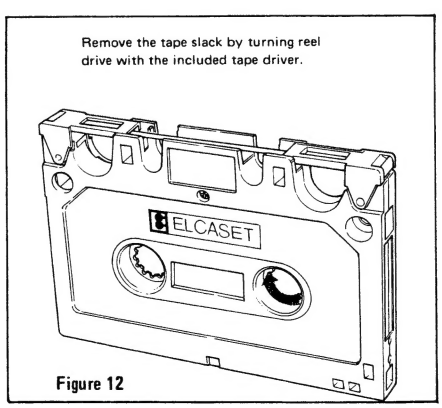


Figure 12

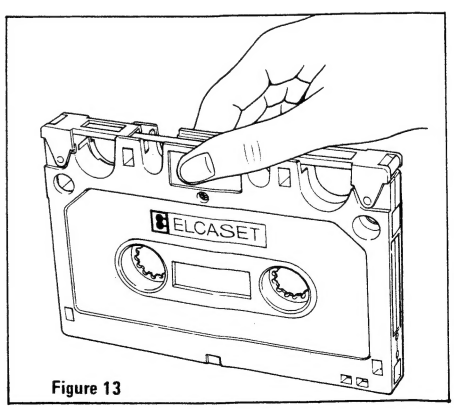


Figure 13

2. SPECIFICATIONS AND SERVICE DATA

2-1 SPECIFICATIONS

Track System	4-Track, 2-Channel Stereophonic
Heads	Erase, Record and Playback
Tape Speed	3-3/4 ips (9.5 cm/sec)
Motors	1 FG Servo Controlled DC Capstan Motor 2 Coreless DC Reel Motors
Type of Tape	ELCASET LC-60 and LC-90 (Type I, II, III)
Inputs (Level and Impedance)	Mic: Specified; −60 dB (0.775 mV)/10 k ohms Minimum; −70 dB ±2 dB (0.244 mV) Line: Specified; −12 dB (194 mV)/ 50 k ohms Minimum; −22 dB ±2 dB (61.5 mV)
Outputs (Level and Load Impedance)	Line: Specified; −5 dB (435 mV)/50 k ohms Maximum; +1 dB ±2 dB (869 mV) Headphone: −18.5 dB ±2 dB (92 mV)/8 ohms
Power Requirement	117 VAC, 60 Hz (USA/CANADA Model), 55 W 100/117/220/240 VAC, 50/60 Hz (GENERAL EXPORT Model), 55 W 220 VAC, 50 Hz (EUROPE Model), 55 W 240 VAC, 50 Hz (U.K./AUSTRALIA Model), 55 W
Dimensions (WHD)	470 x 241 x 342 mm (18-1/2" x 9-1/2" x 13-1/2")
Weight	20 kg (45 lbs) net

2-2 SERVICE DATA -ELECTRICAL-

Frequency Response	Refer to Frequency Response Limits chart in this manual.
Signal-to-Noise Ratio	Playback: 50 dB (DOLBY OUT), 53 dB (DOLBY IN) Overall: 47 dB (DOLBY OUT), 52 dB (DOLBY IN) with LT-801 tape
Erase Efficiency	65 dB or more at 1 kHz signal (LT-803)
Crosstalk	40 dB or more at 125 Hz signal (LT-802)
Stereo Channel Separation	46 dB or more at 1 kHz signal (LT-802)
Total Harmonic Distortion	Overall: 1.5% (LT-803)
Rec Mute Erase Efficiency	60 dB or more at 1 kHz signal

2-3 SERVICE DATA -MECHANICAL-

Tape Speed Deviation and Drift	3.000 Hz ±30 Hz, within 30 Hz
Wow and Flutter	Playback: 0.04% (WRMS) 0.08% (RMS) Overall: 0.06% (WRMS) 0.10% (RMS)

Reel Torque DC Voltage

at STOP mode

Take up and Back Tension	1.32 V ±5%

at PLAY mode

Take up	2.86 V ±5%
Back Tension	0.99 V ±5%

Fast Winding Time	80 seconds for LC-60
Pinch Roller Pressure	600 g ±100 g (18 to 24 oz)
End Stop Activate Time	8 seconds ±2 seconds from Play 1.5 seconds ±0.5 seconds from Fast Wind

NOTE: As a result of continuing changes and improvements during the production run, minor differences may be found between early and later machines. Value of "dB" in this manual refers to 0 dB = 0.775 V.

2-4 DIMENSIONS

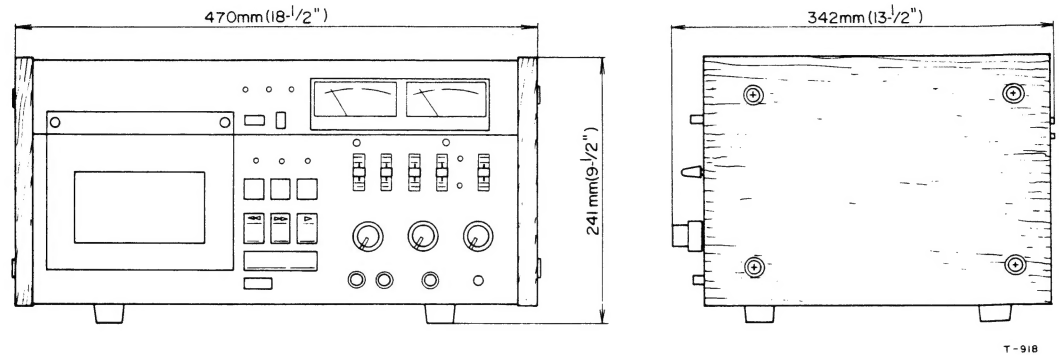
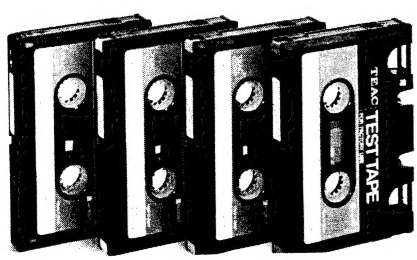


Fig. 2-1 Dimensions

3. TOOLS FOR TESTING AND MAINTENANCE

A minimum of the following tools and test instruments are required for measuring and adjusting for optimum performance. Standard maintenance tools will be adequate for those not listed here. If any test instrument listed here is not available, a close equivalent can be used.

WOW AND FLUTTER METER	Meguro Denpa Sokki k.k, Model MK-668A or D & R Co., Model FL-4B
AC VTVM	Hewlett-Packard Co., Model 400E (0.1 mV-300V)
DIGITAL FREQUENCY COUNTER	Range; 10 Hz ~ 100 kHz
BAND-PASS FILTER	1 kHz narrow band-pass type
OSCILLOSCOPE	General Purpose
AF OSC	10 Hz ~ 100 kHz
ATTENUATOR	General Purpose
DISTORTION ANALYZER	Basic Freq. 400 Hz/1 kHz
HEAD DEMAGNETIZER	TEAC E-3 or equivalent
TOOLS	Hex head Allen Wrench, Plastic alignment tool, Load resistor non-inductive type 8 ohm/1W
SPRING SCALE	0 ~ 1 kg (2.2 lbs.)
TEAC TEST TAPE	For Playback; LT-810 for Tape Speed and Wow/Flutter test, (3,000 Hz) LT-820 for level test, (315 Hz) LT-860 for Alignment and Frequency Response test, (31.5 Hz ~ 16 kHz) For Recording (Blank); LT-801 for TYPE I LT-802 for TYPE II LT-803 for TYPE III



4. DIS-ASSEMBLY

4-1 WOODEN SIDES, BONNET COVER AND BOTTOM PLATE REMOVAL

1. Remove the 8 screws **(A)** holding the wooden side panels.
2. Remove the 8 screws **(B)** holding the bonnet cover plate.
3. Remove the 6 screws **(C)** holding the bottom plate.

4-2 FRONT PANEL REMOVAL

1. Remove Head panel Ass'y by 2 screws, and lift off cassette Holder panel.
2. Remove 5 function knobs by hand and remove 6 control knobs (L/R).
3. Remove the 4 screws (D) holding the front panel (Top).
   Remove the 3 screws (E) holding the front panel (Bottom).
4. Carefully lift off the front panel. Watch for the 3 LED (Lamps), P.C.B. and VU Meters.

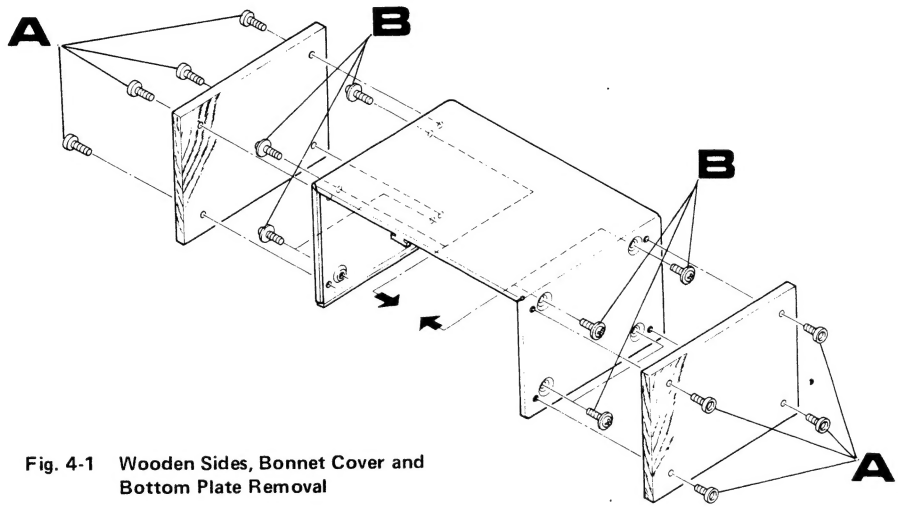


Fig. 4-1 Wooden Sides, Bonnet Cover and Bottom Plate Removal

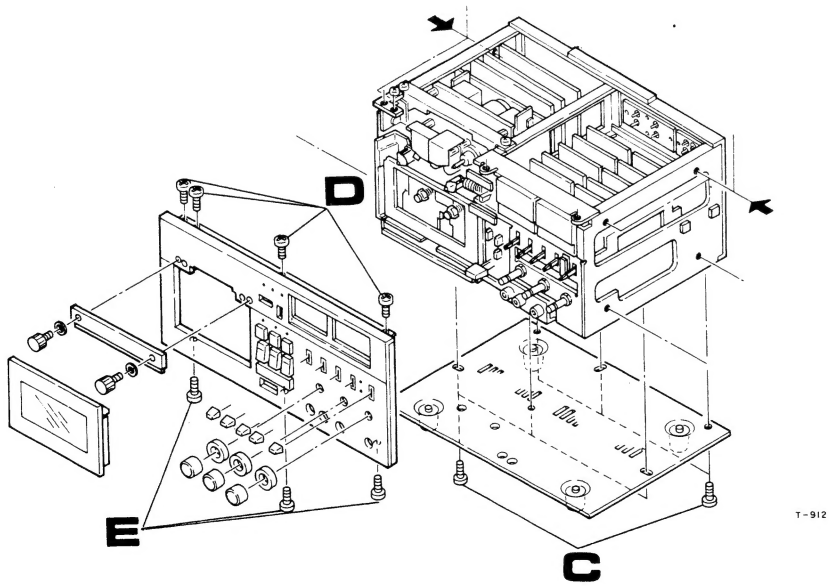


Fig. 4-2 Front Panel Removal

4-3 TAPE TRANSPORT REMOVAL

1. Turn OFF power to the deck.
2. Remove Front panel and Control knobs. See Fig. 4-2.
3. Remove Panel Plate mounted at the Top of Transport.
4. Remove 4 connectors from Transport JOINT P.C Board 104. (See Page 13. PARTS LOCATION).
5. Remove 2 wires (C) (1 red, 1 white) going to pin cord jacks on PLAYBACK AMPL. P.C. Board. Remove connector (D) to REC/ERASE AMPL.
6. Remove counter belt **(E)**.
7. Remove Transport Ass'y. Remove 2 screws **(A)** in top and 2 screws **(B)** in bottom of transport.

NOTE: Use care not to damage END SENSOR P.C. Board and PHOTO TRANSISTOR P.C. Board during Transport Ass'y removal.

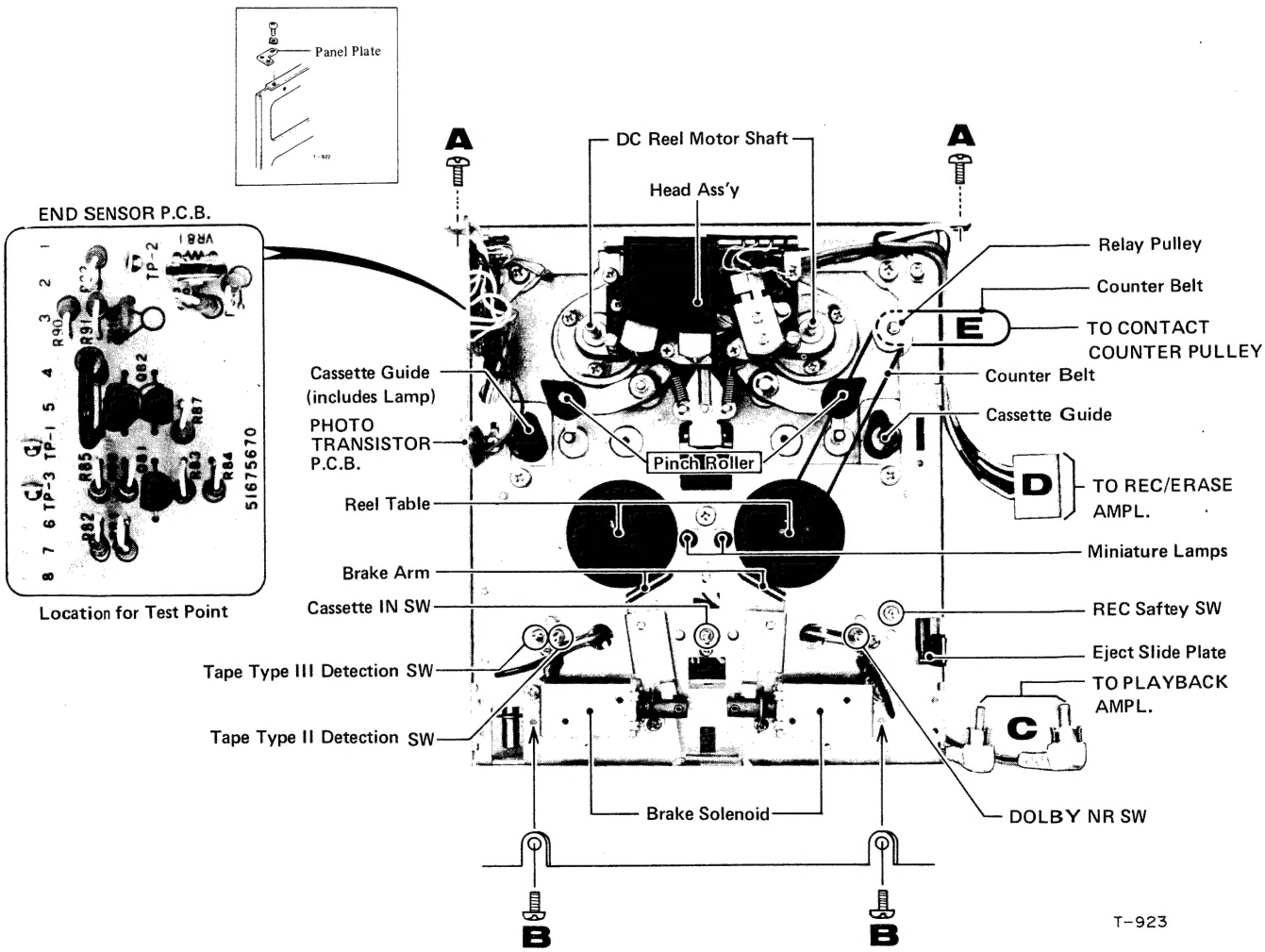


Fig. 4-3 Tape Transport Removal

4-4 CASSETTE HOLDER AND BASE ASS'Y MASK REMOVAL

1. Remove Cassette Holder by removing 4 screws (A and B) at the bottom of the Cassette Holder and disconnecting the Hold up spring.
2. Leave the EJECT lever connected to Cassette Holder Ass'y.
3. Remove 2 screws (C) and slide mask up gently, then remove the mask.
   Use care not to bend or damage switch arms protruding through the mask.

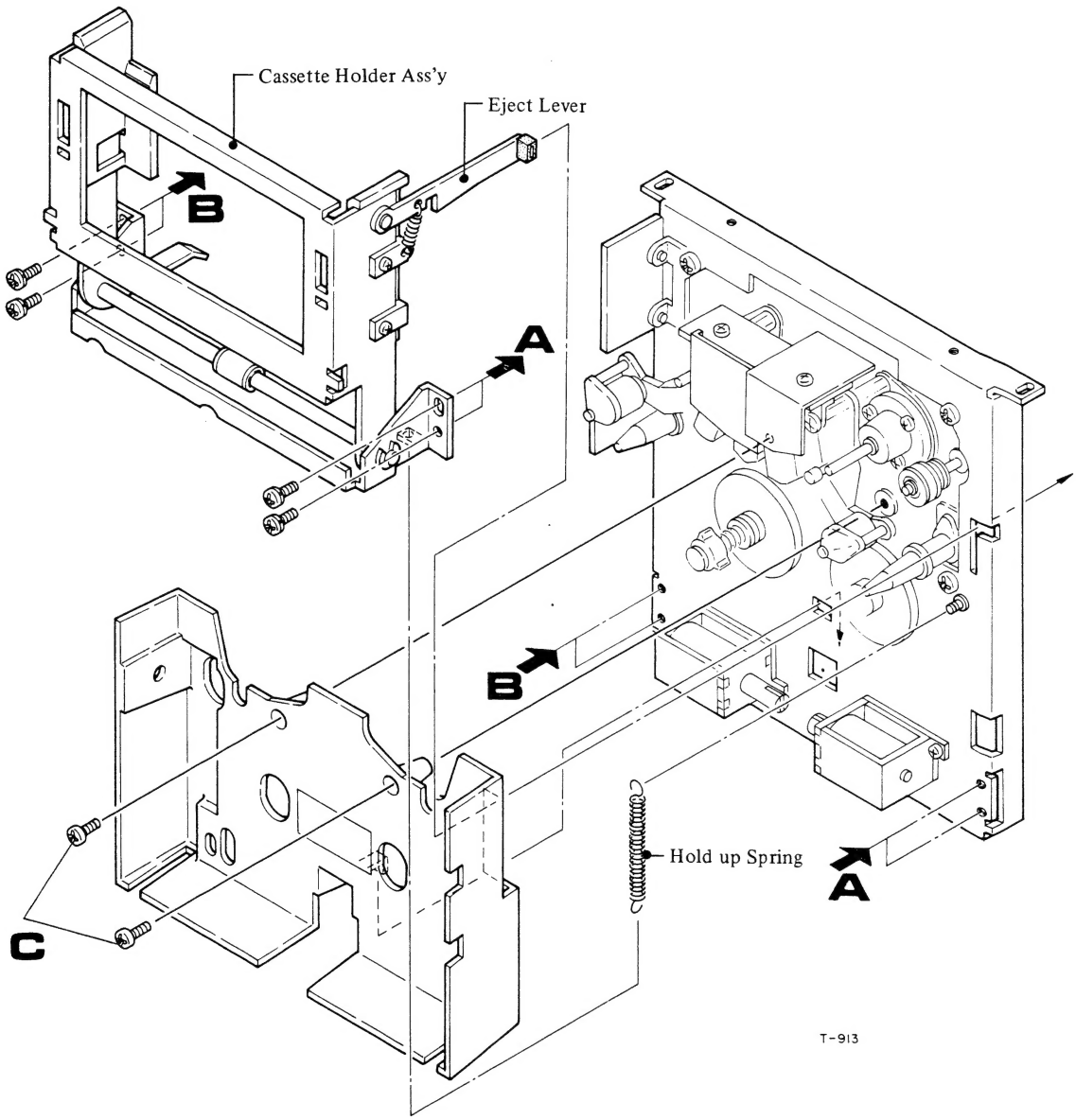


Fig. 4-4 Cassette Holder and Base Ass'y Mask Removal

4-5 HEADS REMOVAL

1. Turn OFF power to the deck.
2. Remove Front panel and control knobs. See page 6.
3. Remove 2 wires **(C)** (1 red, 1 white) going to Pin cord jacks on PLAYBACK AMPL. P.C. BOARD. Remove connector **(D)** to REC/ERASE AMPL. (as explained in Fig. 4-3.)
4. See illustration for other removals.

NOTE: 1. Carefully watch for 2 springs on Rec and Playback heads.
2. If Rec or Playback head is replaced, don't forget to install adjustment pivot pin.
3. If Tape Guides are removed be sure to replace left and right tape guides in proper locations or alignment will not be possible. Refer to Head Alignment Section.

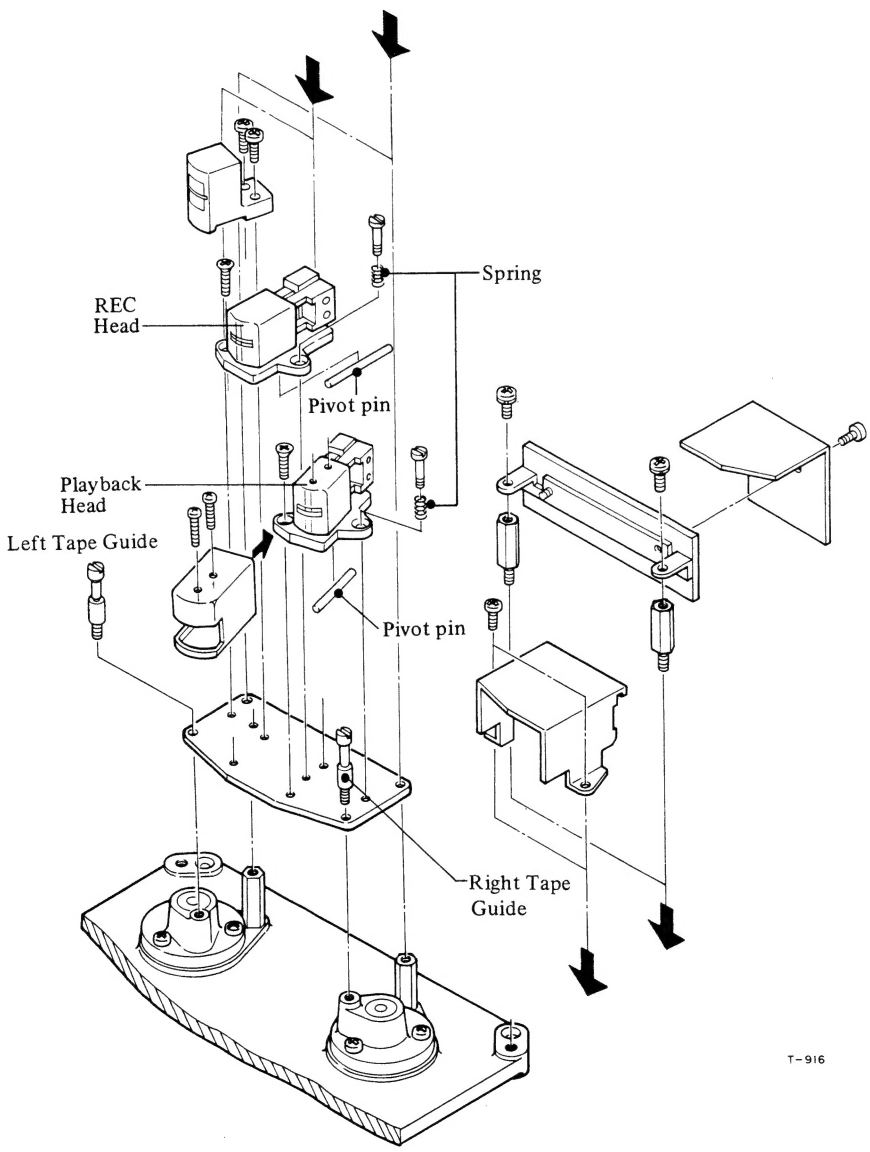


Fig. 4-5 Heads Removal

4-6 CAPSTAN SERVO MOTOR ASS'Y REMOVAL

1. Remove Air Damper Ass'y by removing 2 E-rings (G). Also remove Air Damper shaft by Screw (H).
2. Remove 4 screws (I) in Capstan Motor Bracket and fold bracket back for access to motor mounting screws.
3. Remove 3 mounting screws (J) holding Capstan Servo Motor.
4. Disconnect motor together with wiring and Servo P.C. Board.
5. Disconnect Servo P.C. Board by removing 2 countersunk screws (K) and unsolder 1 red and 1 black wire from Servo P.C. Board.
   The Capstan Motor and Servo P.C. Board should be replaced as a unit if either is defective.
6. If the Capstan Motor Ass'y is replaced, make sure the motor pulley is properly positioned on the drive belt.

4-7 CAPSTAN ASS'Y AND FLYWHEEL ASS'Y REMOVAL

1. Remove Head ass'y. See Fig. 4-5.
2. Remove Air Damper and fold back Capstan Motor Bracket as explained in Section 4-6 steps 1 and 2.
3. Remove two drive belts from Capstan Flywheel.
4. To remove Flywheel, remove the plastic washer from the front of the Flywheel shaft and slide Flywheel toward the rear of the transport ass'y. Be careful not to scratch, bend or damage the Flywheel shaft or driving surfaces. (Continues to next page)

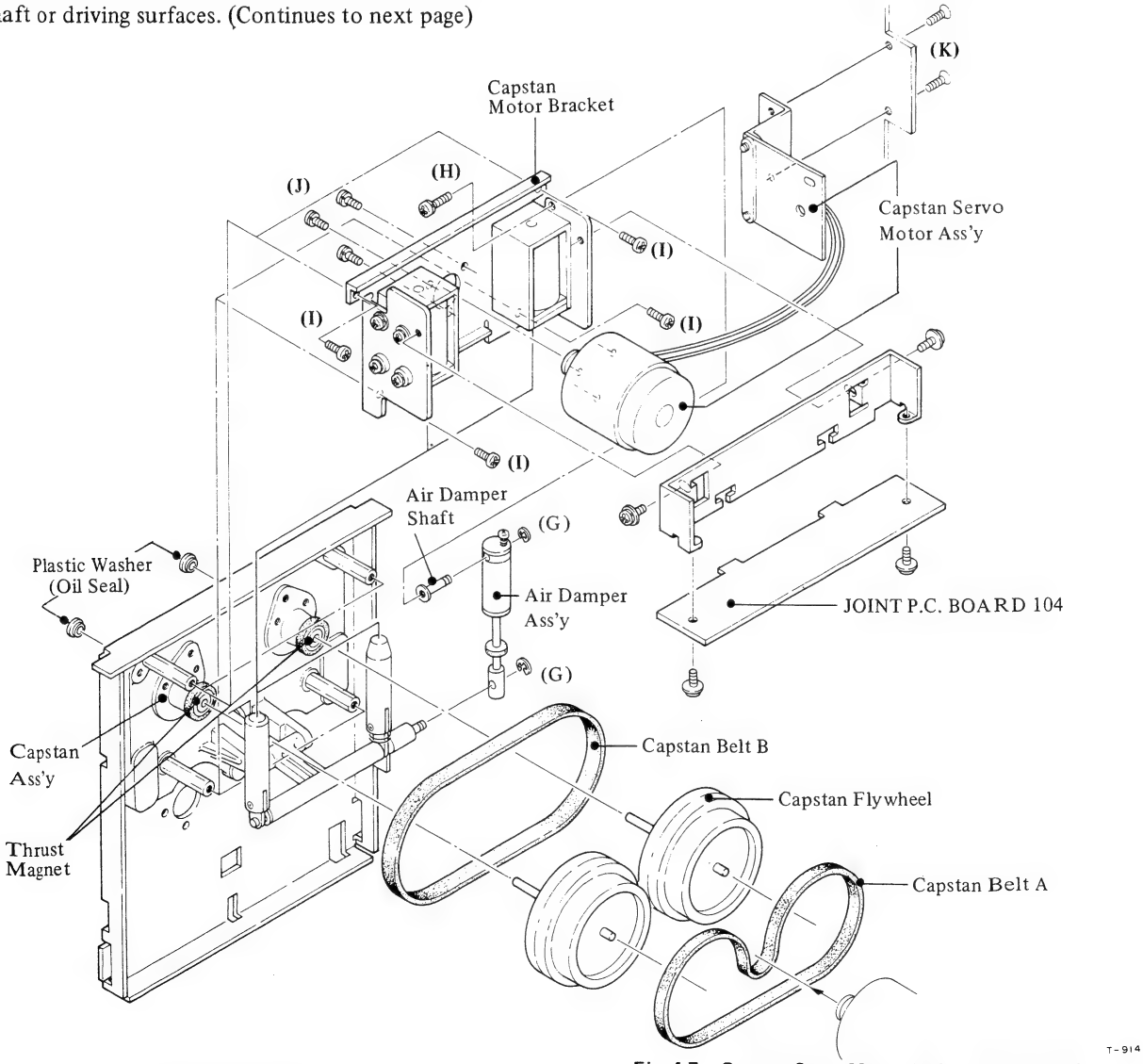


Fig. 4-6 Capstan Servo Motor Ass'y

Fig. 4-7 Capstan Servo Motor Ass'y, Capstan Ass'y and Flywheel Ass'y Removal

5. To remove the Capstan ass'y, first remove the thrust magnet by applying lacquer thinner to dissolve the glue holding the thrust magnet to the Capstan ass'y. Then remove the three screws from the front of the Capstan ass'y and slide it out the front of the transport.
6. When replacing the Capstan ass'y, be sure to glue the thrust magnet to the Capstan ass'y.
7. Replace the Flywheel Ass'y. Be sure to position the belts correctly, wider belt goes on the larger diameter section of the flywheel, and insure that there is a slight amount of "play" in the Flywheel Ass'y to allow smooth rotation. Position Flywheel retaining washer to achieve this.

4-8 REEL MOTOR ASS'Y (L/R) AND REEL TABLE REMOVAL

1. Remove reel table ass'y by loosening 2 set screws **(L)** in reel table and lifting it off reel motor shaft.
2. To remove the left reel table the counter belt must also be removed.
3. Remove 4 screws **(M)** holding reel motor.
4. Unsolder 2 wires (1 red, 1 blue) from Micro SW P.C. Board and remove motor. Wires are connected to pins 5 and 7 for Right Motor and to pins 5 and 6 for the Left Motor.

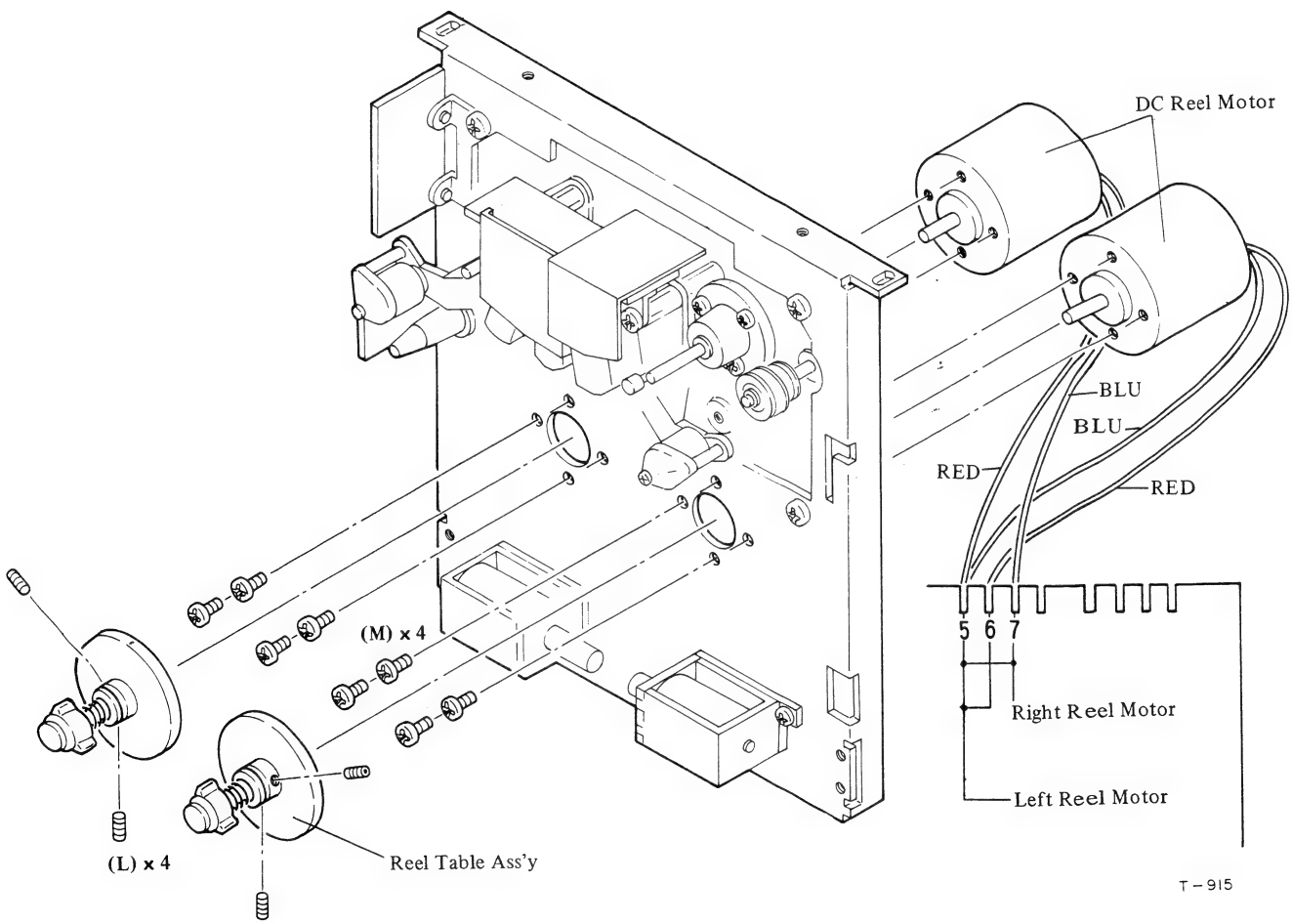
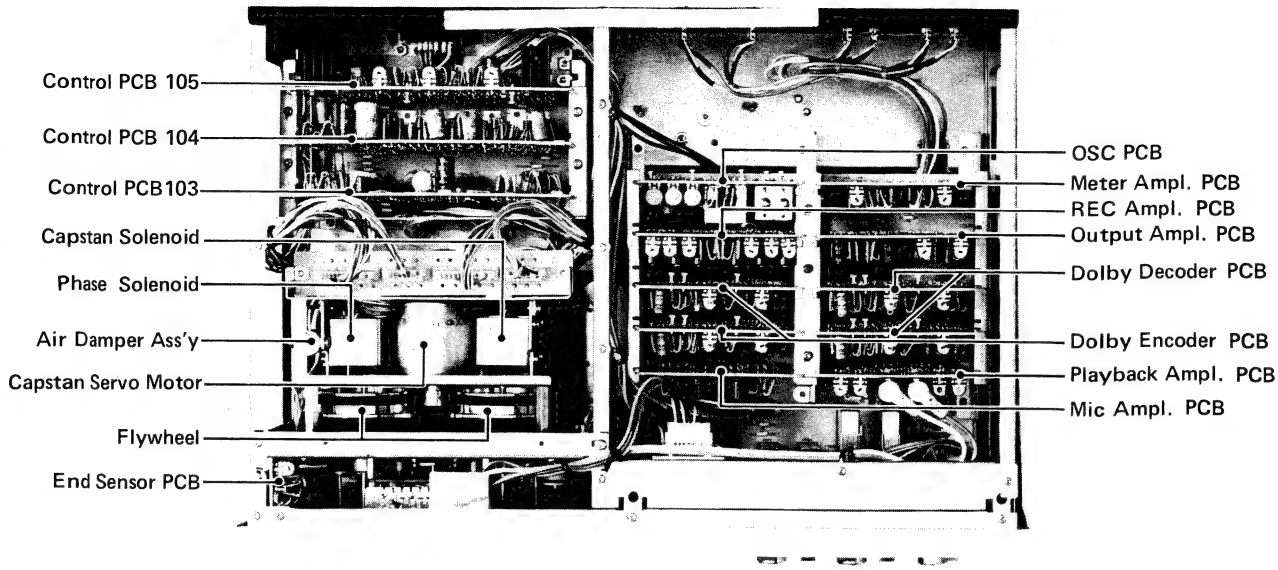
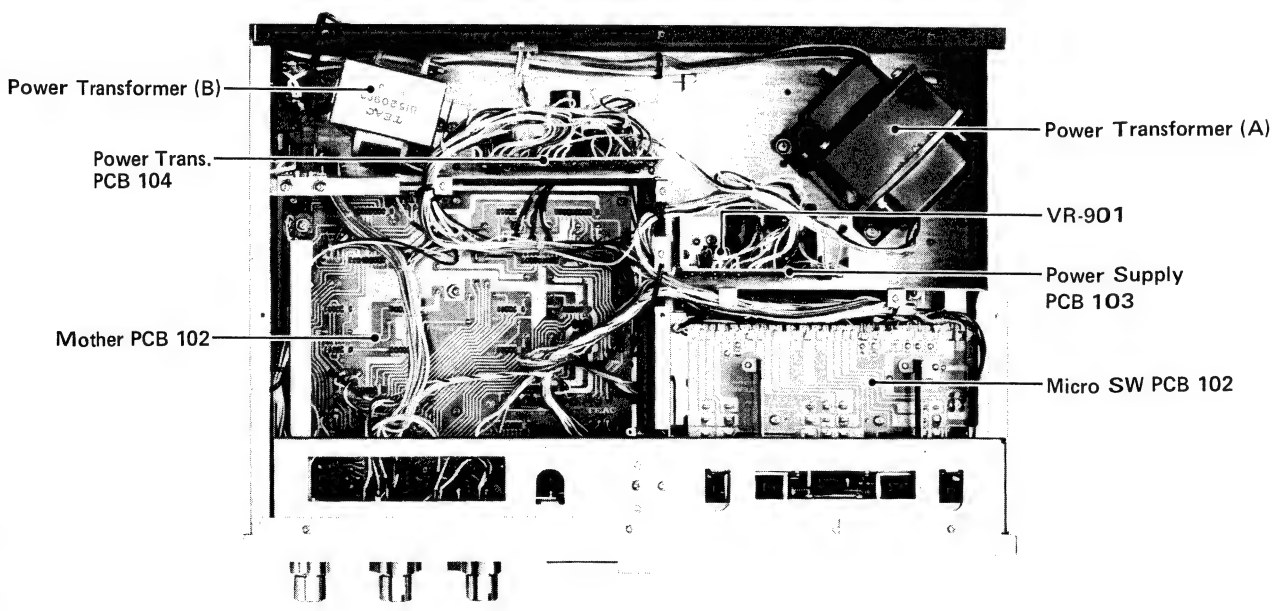


Fig. 4-8 Reel Motor Ass'y (L/R) and Reel Table Removal

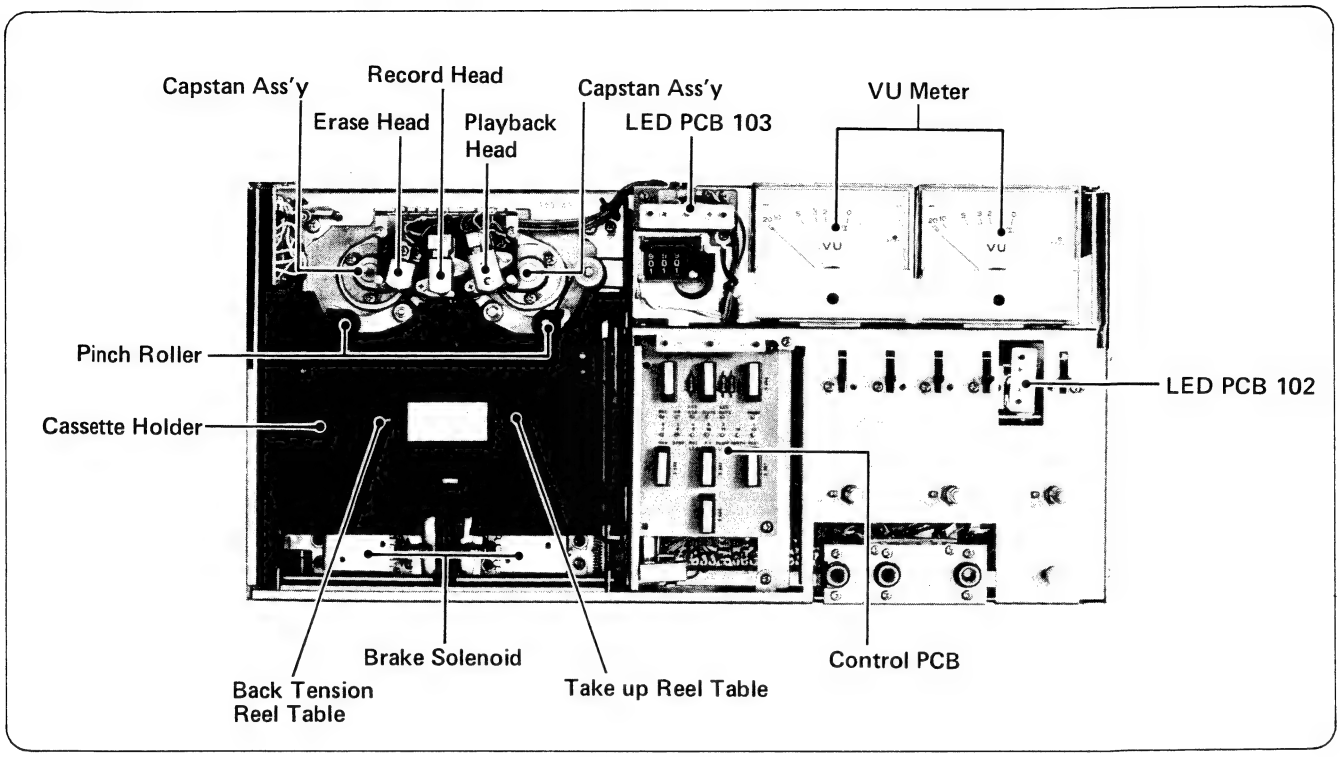
5. PARTS LOCATION



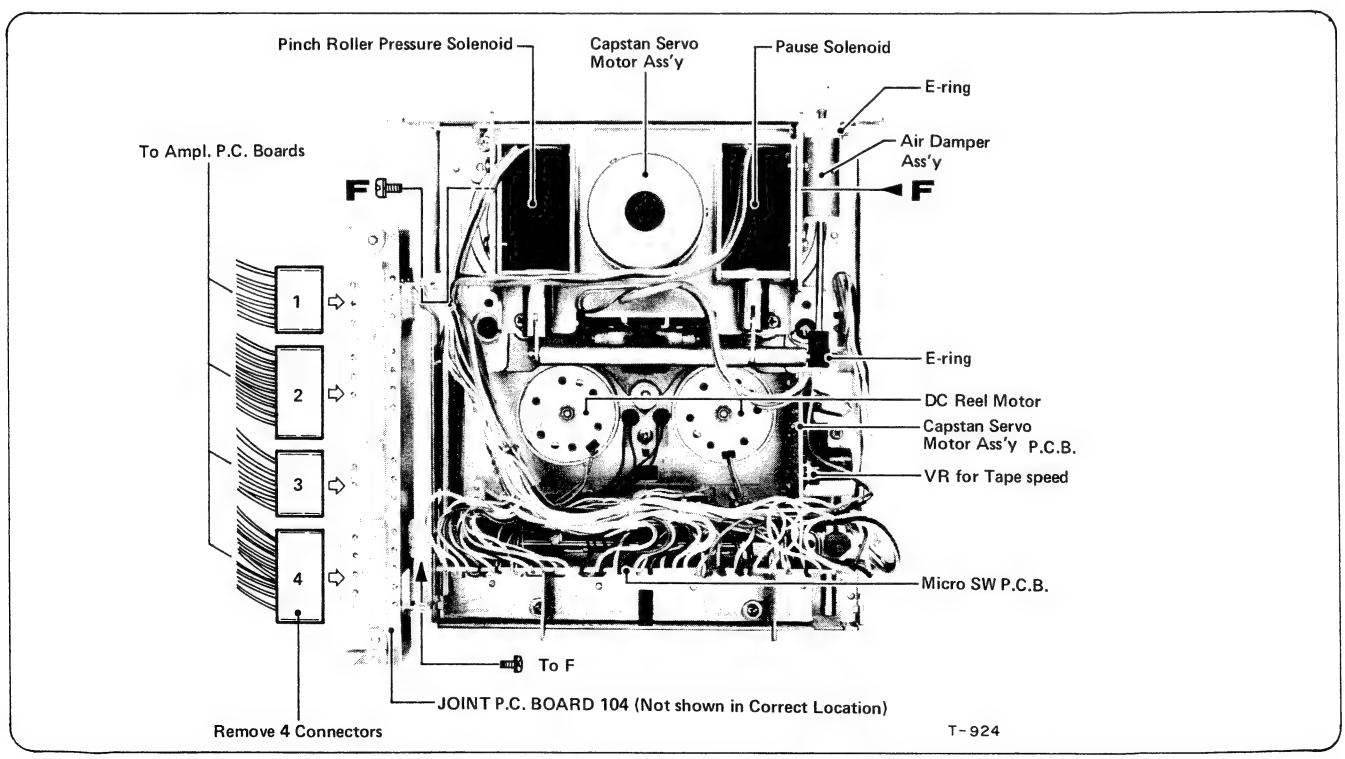
TOP VIEW



BOTTOM VIEW



FRONT VIEW



PARTS LOCATION AND REMOVAL

BACK VIEW

6. MEASUREMENT AND ADJUSTMENT
– MECHANICAL –

6-1 REEL TORQUE DC VOLTAGE SETTING

At STOP MODE

1. Load a TEAC Test Tape in the deck. Keep deck in STOP mode.
2. Connect at DC Volt Meter to the applicable test point listed in the chart below and ground (E) on CONTROL P. C. Board. Check for indicated voltage.

TORQUE	ADJUSTER	TEST POINT	D.C. VOLTAGE
TAKE UP	VR-942	T.P. 2	1.32 V DC
BACK TENSION	VR-943	T.P. 3	1.32 V DC

At PLAY MODE

1. Depress Play Button to select PLAY Mode.
2. Check for voltages as indicated below.

TORQUE	ADJUSTER	TEST POINT	D.C. VOLTAGE
TAKE UP	VR-941	T.P. 2	2.86 V DC
BACK TENSION	Check only No adjuster	T.P. 3	0.99 V ±5%

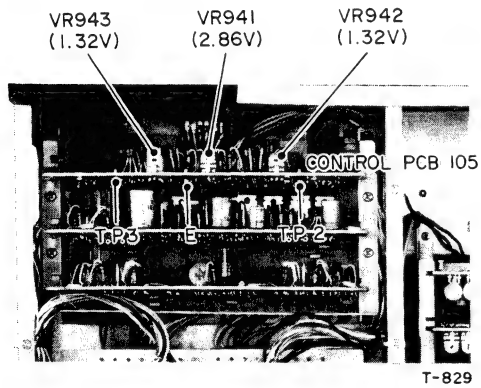


Fig. 6-1 Reel Torque DC Voltage Adjustment Location –On Control P.C.B. 105–

6-2 TAPE SPEED ADJUSTMENT

1. Measure the tape speed using the TEAC LT-810 flutter free tape. (These tapes contain a highly accurate 3,000 Hz tone.)
2. Connect a digital Frequency Counter to either Line OUTPUT jack.
3. While playing the tape the indicated frequency should be 3,000 Hz ±5 Hz.
4. If adjustment is necessary, adjust the TAPE SPEED ADJUST VR (On CAPSTAN SERVO MOTOR ASSY).

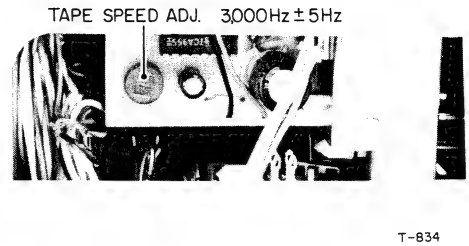


Fig. 6-2 Tape Speed Adj. Location

6-3 AUTO END STOP FUNCTION ADJUSTMENT

1. Short Test points TP 1 and TP 3 on END SENSOR P.C. Board together.
2. Check that lamp inside left guide post illuminates.
3. Connect DC Volt meter from TP 2 to ground on END SENSOR P.C. Board. Adjust VR-81 for 4.5 V DC.
4. Check that when short across TP 1 and TP 3 is removed the lamp in the left guide post lights brighter.
5. Load a test tape containing a blank leader section in the deck and select Play mode.
6. Check for 1 V DC at TP 2.
7. Load a Teac LT-801 Test Tape in the deck. With deck in STOP mode, check for 5V DC or more at TP 2.
8. Select Play mode and check that tape stops automatically when end of tape is reached.

NOTE: To properly adjust the Photo Sensor on the AL-700, please follow these suggestions.

- Make Auto End Stop adjustment only in subdued light areas and keep the deck covered with a black or dark colored cloth allowing only a small opening for access to adjustment.
- If soldering is done on P. C. Board, or element on Photo Transistor, allow parts and surrounding area about 5 minutes to cool before making adjustment on Photo Sensor P. C. Board.
- During adjustment, do not touch Photo Transistor Q651 (Type PH-101L) or Thermistor (TH-601 5T-31).
- Use VTVM with impedance of 100k ohms or more.

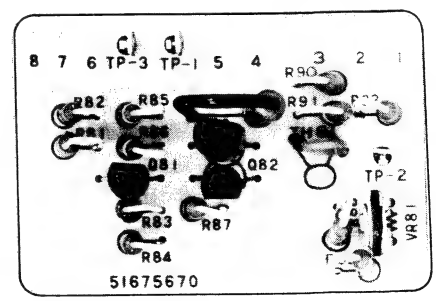


Fig. 6-3 Auto End Stop Adj. Location –On End Sensor P.C.B.–

7. MEASUREMENT AND ADJUSTMENT
– ELECTRICAL –

7-1 AMPL. P.C. BOARD AND ADJ. POINTS LOCATION

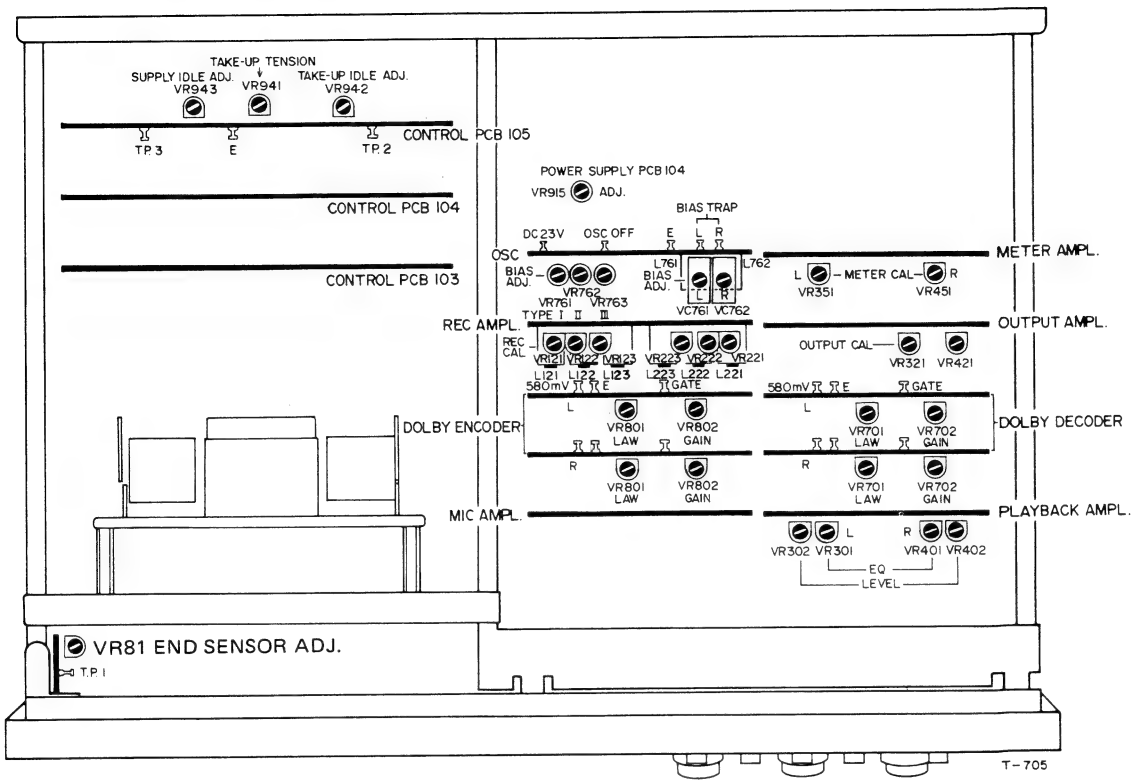


Fig. 7-1 Ampl. P.C.B. and Adj Points Location

Adj. Component	Adjustment	Test Point Location on P.C.B.
VR-901	DC Voltage 13 V	Power Supply
VR-915	DC Voltage 23 V	OSC P.C. Board
VR-321/421	OUTPUT GAIN ADJ.	Output Ampl.
VR-351/451	VU Meter (Monitor)	Meter Ampl.
VR-302/402	Playback Level	Playback Ampl.
VR-301/401	Playback EQ	Playback Ampl.
VR-763	Bias Oscillator Adj.	OSC P.C. Board
L-761/762	Bias Trap	OSC P.C. Board
VC-761/762 (III)	Bias Adj.	OSC P.C. Board
VR-762 (II)	Bias Adj.	OSC P.C. Board
VR-761 (I)	Bias Adj.	OSC P.C. Board
VR-123/223 (III)	Rec Level	Rec Ampl.
VR-122/222 (II)	Rec Level	Rec Ampl.
VR-121/221 (I)	Rec Level	Rec Ampl.
L-123/223 (III)	Peaking Coil	Rec Ampl.
L-122/222 (II)	Peaking Coil	Rec Ampl.
L-121/221 (I)	Peaking Coil	Rec Ampl.
VR 81	End Sensor Adj.	See Fig. 7-1

7-1 POWER SUPPLY (DC VOLTAGE) SETTING

NOTE: Cassette tape must be located in deck or cassette detector switch pushed in to obtain 13 V at test point.

13 V DC SETTING

1. Remove Top of Case (by 8 screws) and Bottom panel (by 6 screws).
2. Connect a DC Voltmeter to the Test Point (13 V) and ground on POWER SUPPLY P. C. B. Located at bottom of deck.
3. Adjust **VR-901** for 13 V ±0.5 V DC.

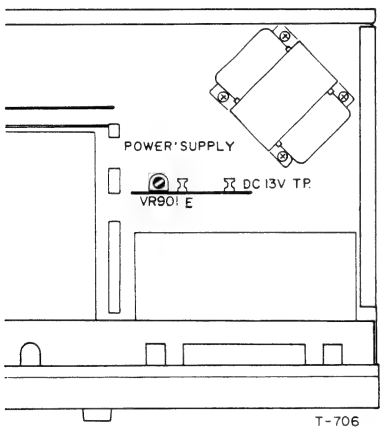


Fig. 7-2 DC Voltage 13 V Adj. Location —On Power Supply P.C.B.—

23 V DC SETTING

4. Connect the DC Voltmeter between the Test Point (23 V) and ground on OSC P. C. B. Located at Top of deck.
5. Adjust **VR-915** for 23 V ±0.5 V DC.

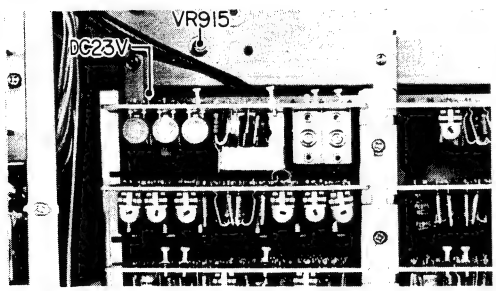


Fig. 7-3 DC Voltage 23 V Adj Location —On OSC P.C.B.—

– MONITOR PERFORMANCE – 1

Set the controls of the AL-700 as outlined below;

MEMORY SW . . . . . OFF
TIMER SW . . . . . OFF
INPUT/MPX SW . . . . . NORMAL
NR SYSTEM SW . . . . . OUT

7-2 MINIMUM INPUT LEVEL CHECK AND SPECIFIED INPUT LEVEL SETTING

OUTPUT SW . . . . . SOURCE

1. Connect an AF oscillator to LINE IN jacks, through an attenuator. Set LINE or MIC input level controls fully clockwise.
2. Connect VTVM to TO ENCODER SEND terminals.
3. Apply a 400 Hz Test Tone at Min. input level as listed below to LINE IN and MIC jacks.
4. When 580 mV (–2.5 dB) output is obtained at the TO ENCODER SEND terminals, check that Min. input levels conform to values listed in the chart.
5. Set input attenuator for LINE Specified Input level.

Input	Spec. Input level	Min. Input level
LINE IN	–12 dB (194 mV)	–22 dB ±2 dB (77 mV ~ 48.8 mV)
MIC IN	–60 dB (0.775 mV)	–70 dB ±2 dB (0.308 mV ~ 0.194 mV)

6. Set LINE level control for 580 mV (–2.5 dB) at TO ENCODER SEND jacks.

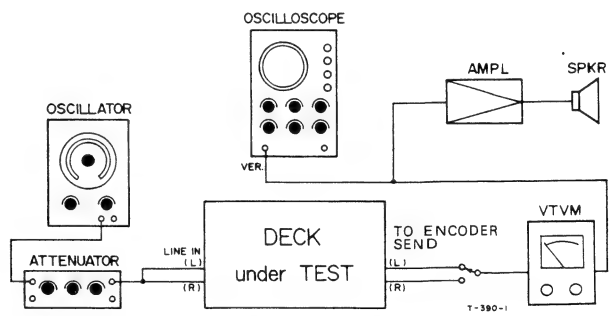


Fig. 7-4 Test Connection for Monitor check

7-3 OUTPUT AMPL. GAIN ADJUSTMENT & VU METER CALIBRATION

7. Connect VTVM to OUTPUT jacks.
8. Set Output Volume controls for CAL position.
9. Adjust OUTPUT GAIN VR-321/421 for –5 dB (435 mV) at the OUTPUT jacks. (Use VTVM with input impedance of 1 M ohm or more)

10. With controls set as described, check for O VU indication on the VU Meter.
11. If necessary, adjust VR-351/451.

NOTE: During following checks and adjustments, always Keep 580 mV at the TO ENCODER SEND terminals.

–PLAYBACK PERFORMANCE –

7-4 PLAYBACK HEAD ALIGNMENT

OUTPUT SW . . . . . TAPE

1. Connect the Test equipment as shown in Fig. 7-6.
2. Load and Play the TEAC Test Tape LT-860 in the deck. Play the 12.5 kHz , –10 dB Test signal section.
3. Adjustment **azimuth screw** on Playback head for maximum indication on the VTVM. **(Note that head panel ass'y must be removed).**
4. Play the 8 kHz, –10 dB test signal and confirm that the signals on both channels are less than 45° out of phase.

NOTE: After adjustment is complete, secure the screw with locking or insulating paint.

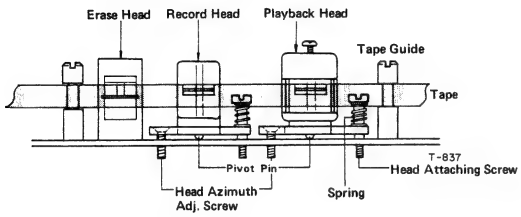


Fig. 7-5 Head Azimuth Adj. Screws Location

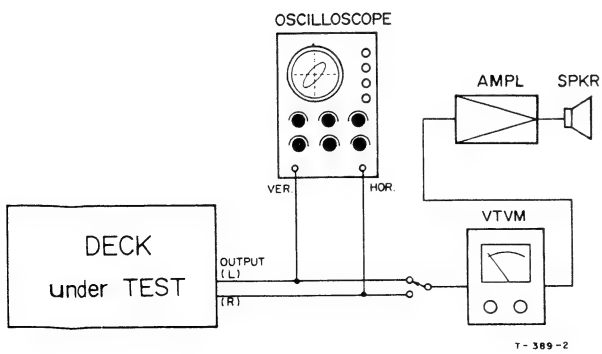


Fig. 7-6 Head Alignment Fine Adj. Set-up and Connections (PLAYBACK)

7-5 PLAYBACK LEVEL ADJUSTMENT

1. Load and Play the TEAC Test Tape LT-820 in the deck.
2. Adjust **VR-302/402** for 580 mV at the TO DECODER SEND terminals.
3. Turn the OUTPUT Volume controls fully clockwise.
4. Check for Output level +1 dB ±1 dB (869 mV) at OUTPUT jacks.
5. Readjust OUTPUT Volume controls for –5 dB **(435 mV)** output level at the OUTPUT jacks **(Controls should be at CAL position).**

7-6 VU METER CALIBRATION

6. With controls set as described, check for 0 VU ±1 VU indication on the VU Meters.

7-7 FREQUENCY RESPONSE –PLAYBACK–

1. Place the TEAC Test Tape LT-860 (or equiv.) in the deck. This tape will apply a 31.5 Hz to 16 kHz tone signal –10 dB below operating reference level.
2. Adjust **VR-301/401** (on PLAYBACK AMPL. P. C. B.) so that 315 Hz and 12.5 kHz signal are same level.
3. Then check and compare the readings obtained on the VTVM with response limits given in Fig. 7-7.
4. If the frequency response is out of limits, heads should be checked for accumulated dirt or oxides. If clean, head azimuth must be readjusted.

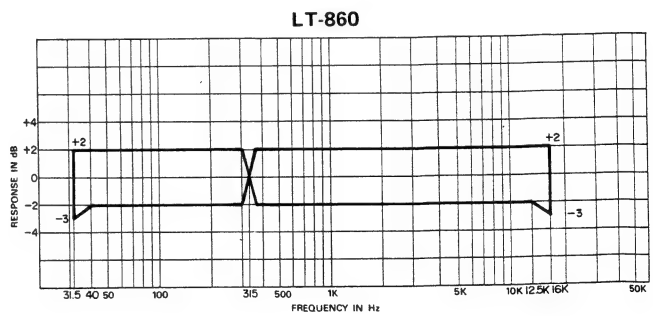


Fig. 7-7 Frequency Response —Playback—

7-8 SIGNAL-TO-NOISE RATIO CHECK

1. Insert a test tape with blank leader section in the deck.
2. Place the deck in the PLAY mode.
3. The AC VTVM connected to the OUTPUT jacks should indicate –55 dB or more.
4. This corresponds to signal-to noise ratio of 50 dB **(with NR SYSTEM switch OUT)**; Difference between residual noise –55 dB and Specified output level –5 dB.
5. Specification is 53 dB with NR SYSTEM switch at DOLBY AUTO position.

–RECORD PERFORMANCE–

7-9 BIAS OSCILLATOR VOLTAGE CHECK

1. Apply power, load a TEAC LT-803 Test Tape in the deck. Place the deck in the Record mode.
2. Measure the AC Voltage (VTVM) across the Erase head. The normal reading is 40 V.
3. If incorrect, adjust **VR-763**.

NOTE: Bias frequency is 100 kHz ±5 kHz.

7-10 BIAS TRAP ADJUSTMENT

1. Remove all input signals.
2. Load a TEAC LT-803 Test Tape in the deck.
3. Select REC PAUSE Mode.
4. Connect a VTVM or oscilloscope across the Bias trap Test Point on OSC P. C. B.
5. Adjust **L-761/762** for minimum reading.

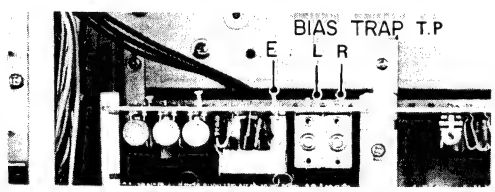


Fig. 7-8 Bias Trap Adj. Location

TYPE III ADJUSTMENT

7-11 RECORD HEAD ALIGNMENT

1. Load the TEAC Test Tape LT-803 in the deck.
2. Rec and Play a 12.5 kHz test signal (**10 dB below the specified Input level**).
3. Adjust **azimuth screw** on Record head for maximum indication on the VTVM.
4. Record and Play an 8 kHz signal and check that the oscilloscope shows that the signals are less than 45° out of phase.

7-12 BIAS ADJUSTMENT

The following adjustments and checks for BIAS, RECORD LEVEL SETTING, BIAS FINE ADJUSTMENT, PEAKING COIL ADJUSTMENT, FREQUENCY RESPONSE (**OVERALL**) CHECK and DISTORTION CHECK should be done for Type III, Type II, and Type I tapes. The basic procedure is given for Type III tapes. Repeat the procedures for Type II and Type I tapes using the information given in the charts for Type II and Type I tapes.

NOTE: During the following checks and adjustments, connect a signal to the LINE IN jacks at –20 dB below the Specified Input level of –12 dB. (–32 dB (19.4 mV)
Be sure the Bias Trap has been adjusted per section 7-10 before proceeding.

5. Apply a 4 kHz signal at –32 dB (19.4 mV).
6. While recording on the tape, adjust **VC761/762** for peak reading on the VTVM, then turn the capacitor clockwise until the signal decreases by 0.7 to 1.3 dB from the peak level.

Type Tape	Signal Frequency and Level	Adjustment	Adjust for
II LT-802	4 kHz, –32 dB	**VR762**	peak reading, then overbias of 1.0 to 1.5 dB
I LT-801	4 kHz, –32 dB	**VR761**	peak reading, then overbias of 1.5 to 2 dB

7-13 RECORD LEVEL SETTING

7. Apply a 400 Hz signal at –32 dB (**19.4 mV**) to LINE IN jacks.
8. Check for –25 dB (**43.5 mV**) at OUTPUT jacks.
9. If the output level is incorrect, adjust **VR123/223** (on REC AMPL. P. C. B.) as necessary.

Type Tape	Signal Frequency and Level	Adjustment	Adjust for
II LT-802	400 Hz, –32 dB	**VR122/222**	–25 dB output
I LT-801	400 Hz, –32 dB	**VR121/221**	–25 dB output

7-14 BIAS FINE ADJUSTMENT

10. Apply and record, one after the other, a 10 kHz, –32 dB signal and a 400 Hz, –32 dB signal to the LINE IN jacks.
11. While recording and playing back, check for identical output levels for both frequencies.
12. If necessary, adjust **VC761/762** (on OSC P. C. B.) further clockwise and again record and play until the output levels for both frequencies are the same.

Type Tape	Signal Frequency and Level	Adjustment	Adjust for
II LT-802	400 Hz and 10 kHz, –32 dB	**VR762**	Same output level for both frequencies
I LT-801	400 Hz and 10 kHz, –32 dB	**VR761**	Same output level for both frequencies

7-15 PEAKING COIL ADJUSTMENT

13. Apply and record, one after the other, a 20 kHz, –32 dB signal and a 400 Hz, –32 dB signal.
14. While recording and playing back, check for identical output levels at both frequencies.
15. If necessary, turn **L123/223** (on REC AMPL. P. C. B.) further clockwise and again record both frequencies until the output levels are the same.

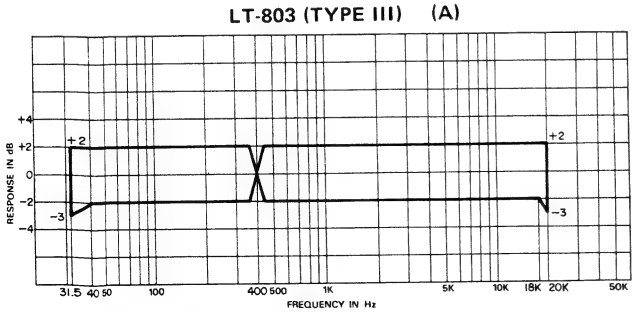
Type Tape	Signal Frequency and Level	Adjustment	Adjust for
II LT-802	400 Hz and 20 kHz, –32 dB	L122/222	Same output level for both frequencies
I LT-801	400 Hz and 18 kHz, –32 dB	L121/221	Same output level for both frequencies

7-16 FREQUENCY RESPONSE OVERALL

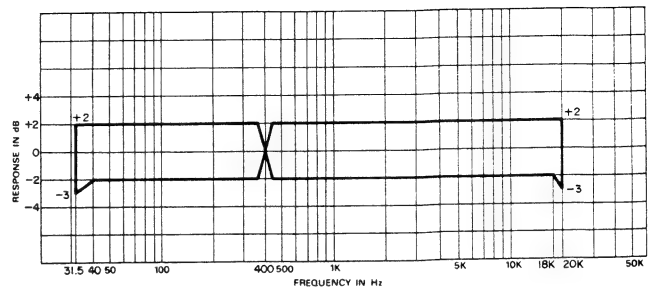
16. Load a TEAC LT-803 Test Tape in the deck.
17. Apply a signal swept from 31.5 Hz to 20 kHz to LINE IN jacks at 20 dB below the specified input level –32 dB (19.4 mV) and record it on the Test Tape and Playback the recording.
18. Check that overall response corresponds to applicable chart in Fig. 7-9 (A).
19. If the response is not uniform, the heads should be cleaned of accumulated oxide and dirt. Then repeat the Bias adjustment procedures.

Type Tape	Signal Frequency and Level	Check for
II LT-802	31.5 Hz to 20 kHz –32 dB	Frequency response within limits given in Chart B.
I LT-801	31.5 Hz to 18 kHz, –32 dB	Frequency response within limits given in Chart C.

LT-803 (TYPE III) (A)



LT-802 (TYPE II) (B)



LT-801 (TYPE I) (C)

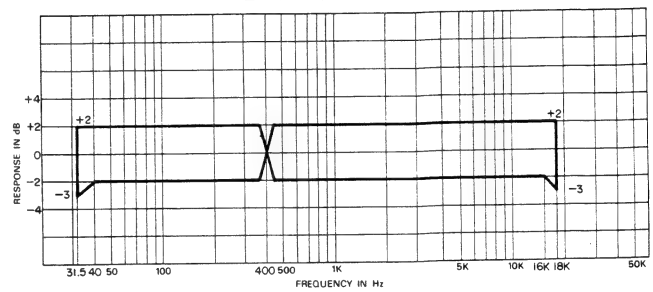


Fig. 7-9 Frequency Response —Overall—

7-17 DISTORTION CHECK

1. Connect a distortion analyzer to the OUTPUT jacks.
2. Connect an AF oscillator to the LINE IN jacks, through an attenuator.
3. Load a TEAC LT-803 Test Tape in the deck.
4. Apply a 400 Hz signal to LINE IN jacks at the specified Input level (**–12 dB, 194 mV**).
5. Play this recorded section of tape and read the indicated value on the Distortion analyzer.
6. The distortion factor should be 1.5% or less.

Type Tape	Signal Frequency and Level	Distortion Level read on Distortion Analyzer
II LT-802	400 Hz, –12 dB	1% or less
I LT-801	400 Hz, –12 dB	1.3% or less

7-18 SIGNAL-TO-NOISE RATIO – OVERALL –

1. Load a TEAC LT-801 Test Tape in the deck.
2. Output and Line controls should be at the specified positions.
3. Remove the AF oscillator from the LINE IN jacks.
4. Place the deck in the Record mode with "no signal" applied. Note the point on the index counter where recording begins.
5. Rewind the tape to the beginning point and play it back.
6. The noise level as indicated on the VTVM should be reading –52 dB (NR SYSTEM SW – OUT
   – Specification: 47 dB
   –57 dB (NR SYSTEM SW – DOLBY AUTO
   – Specification: 52 dB

NOTE: Specification is the difference between residual noise level and the specified output level, –5 dB (435 mV).

BIAS LEAKAGE CHECK

1. Load a TEAC LT-803 Test Tape in the deck.
2. Output and Line controls should be at the specified positions.
3. Remove all input signals.
4. Depress the REC and PAUSE buttons.
5. Check for minimum bias leakage reading at OUTPUT jacks.
6. Spec. –50 dB or less. VU Meter indication 1 mm or less.

7-19 OPTIMUM ERASURE MEASUREMENT

1. Load a TEAC LT-803 Test Tape in the deck.
2. Apply and record a 1 kHz signal at 10 dB above the operating level of –12 dB (–2 dB, 615 mV).
3. While recording, read the output level through a 1 kHz band pass filter. Tune the 1 kHz frequency for maximum output from the band pass filter.
4. Disconnect the 1 kHz signal source from LINE IN jacks.
5. Rewind about half way through the 1 kHz recorded section of the tape.
6. Put deck in the record mode and "record" (erase) over this previous recording. Then, rewind to the beginning.
7. Put deck in the play mode and monitor the output on the VTVM.
8. Difference in output level between the 1 kHz signal and the "no-signal" section level shall be more than 65 dB.

7-20 CROSSTALK REJECTION

1. Apply a 125 Hz signal at –12 dB (194 mV) to the Right Channel LINE IN jack.
2. Make about a 30 seconds recording of the 125 Hz signal.
3. Remove the cassette, turn it over and re-insert it in the deck.
4. Connect a VTVM to the Right Channel OUTPUT jack.
5. Playback the Right Channel section that is adjacent to the signal recorded portion of the tape and monitor the level on the VTVM.
6. The reading should be –40 dB or more.

7-21 REC MUTE EFFECT

USE TEAC TEST TAPE LT-802

1. Connect a 1 kHz, –2 dB (615 mV) signal to LINE IN jack.
2. Record and Play this signal. Measure the output through a 1 kHz Band Pass Filter. Adjust the input frequency to obtain the maximum output from the Band Pass Filter.
3. Record a few seconds of this signal and while recording, note the output level.
4. Rewind the tape about halfway back through the signal recorded in step 3.
5. Select the REC MUTE mode and measure the output level again. Compare this level to the level measured in step 3.
6. The difference shall be 60 dB or more.

7-22 DOLBY SYSTEM EFFICIENCY CHECK

The following adjustments and checks are done using blank Test Tape TEAC LT-802.
Connect an AF oscillator to the LINE IN jacks, through an attenuator. Connect a VTVM to the OUTPUT jacks.

7-22-1 DOLBY DECODER CHECK:

a) CHECK FOR 1 kHz

1. Apply a 1 kHz signal at –32 dB (19.4 mV)
2. Record this signal with the NR SYSTEM SW at OUT.
3. Play this recorded section of the tape.
4. While playing the 1 kHz signal, read the indication of the output level on VTVM with the NR SYSTEM SW at DOLBY AUTO and OUT positions.
5. The output level should vary 4 dB to 7 dB between the AUTO and OUT positions.

b) CHECK FOR 10 kHz

6. Repeat the above procedure changing the applied Test signal to 10 kHz –42 dB (6.15 mV).
7. The variation should be 8 dB to 12 dB.

7-22-2 DOLBY ENCODER CHECK:

a) CHECK FOR 1 kHz

1. Apply and Record a 1 kHz signal at –37.5 dB (10.3 mV).
2. While recording set the NR SYSTEM switch at OUT position for a few seconds and then to DOLBY AUTO for a few seconds.
3. Rewind and play the tape with the NR SYSTEM switch set to OUT position.
4. The playback level should vary by 4 dB to 7 dB for the two positions recorded in step 2.

b) CHECK FOR 10 kHz

6. Repeat the above procedure changing the applied Test signal to 10 kHz, –52 dB (1.94 mV).
7. The variation should be 8 dB to 12 dB.

7-23 DOLBY COPY CHECK

OUTPUT SW .... SOURCE

a) **CHECK FOR 1 kHz**

1. Apply a 1 kHz signal, at –32 dB (19.4 mV).
2. Set NR SYSTEM switch to DD AUTO position.
3. Read the indication of the output level on VTVM with the INPUT/MPX switch at DD COPY and NORMAL positions.
4. The output level should vary 4 dB to 7 dB, between the DD COPY and NORMAL positions.

b) **CHECK FOR 10 kHz**

5. Repeat the above procedure changing the applied Test signal to 10 kHz –42 dB (6.15 mV).
6. The variation should be 8 dB to 12 dB.

– MONITOR PERFORMANCE – 2

NOTE: For the following two Items OUTPUT SW must be at SOURCE position.

7-23 PEAK LEVEL INDICATOR CHECK

1. Apply a 400 Hz/–4.5 dB ±1 dB signal **(from ATT)** to the LINE IN jacks.
2. Check that PEAK LEVEL Indicator lights at full intensity.
3. When the 400 Hz signal is reduced to –7 dB (±1 dB) check that PEAK LEVEL Indicator goes off completely.

7-24 HEADPHONE OUTPUT LEVEL CHECK

1. These checks should be done after setting the specified input, output levels.
2. Connect test equipment to the deck as shown in Fig. 7-10. An 8 ohm non-inductive resistor should be used as the test load resistor.
3. Measure the level scross the test load resistor.
4. The value should be –18.5 dB ±2 dB.

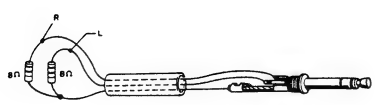


Fig. 7-10 Test Condition for Headphone Output Level Checks

8. BLOCK AND LEVEL DIAGRAMS

8-1 BLOCK DIAGRAM

NOTE: 1. REF. NOs. shown in the diagram relate only to the Left channel.
2. 0 dB = 0.775 V

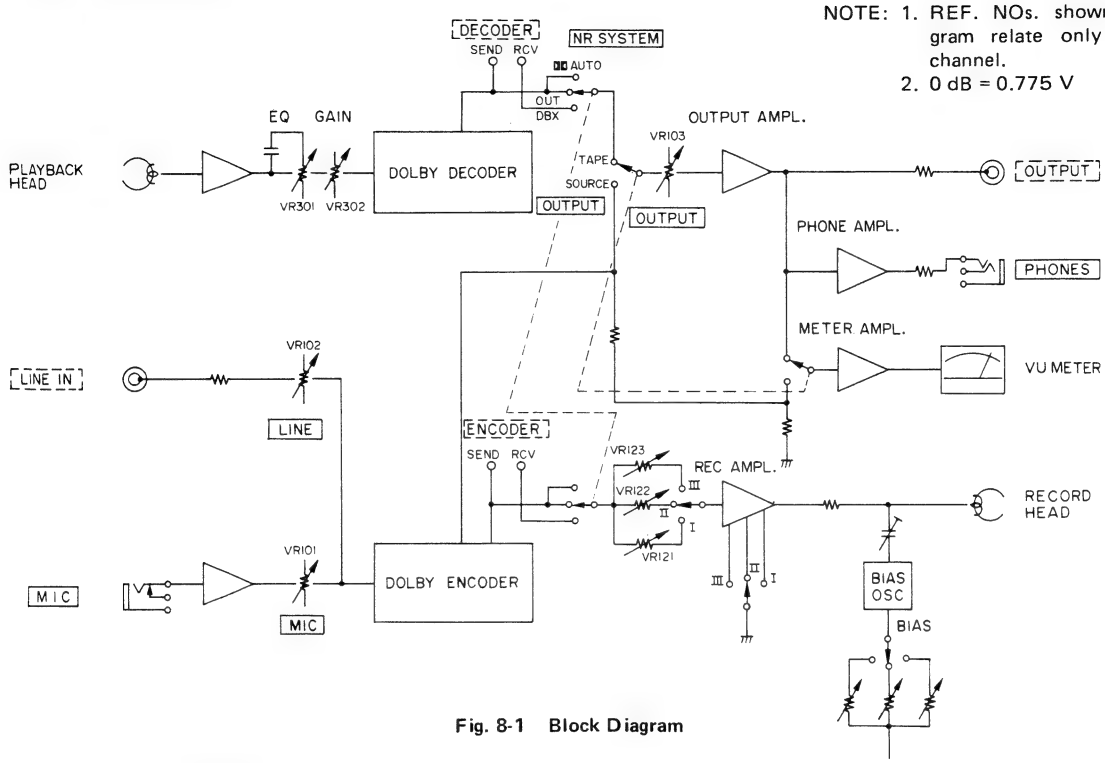
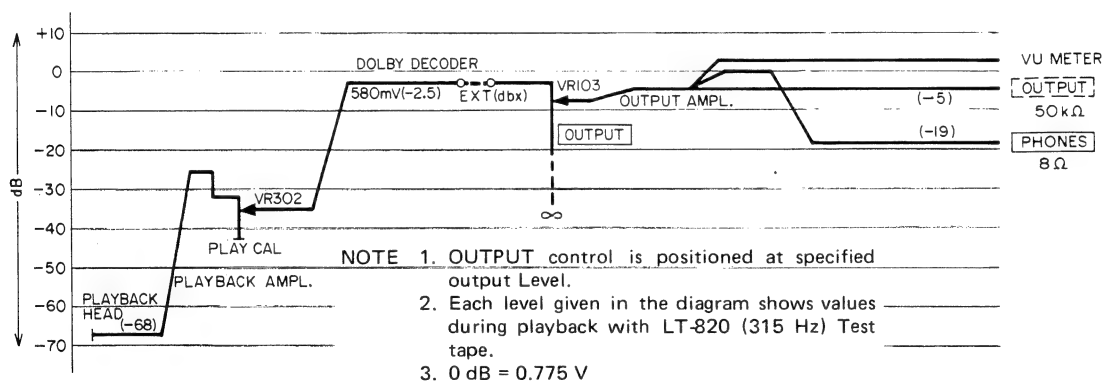


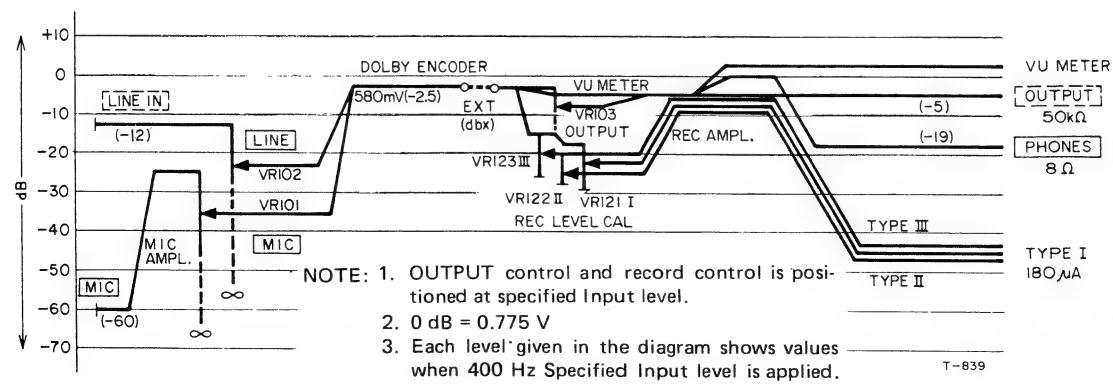
Fig. 8-1 Block Diagram

8-2 LEVEL DIAGRAMS



NOTE 1. OUTPUT control is positioned at specified output Level.
2. Each level given in the diagram shows values during playback with LT-820 (315 Hz) Test tape.
3. 0 dB = 0.775 V

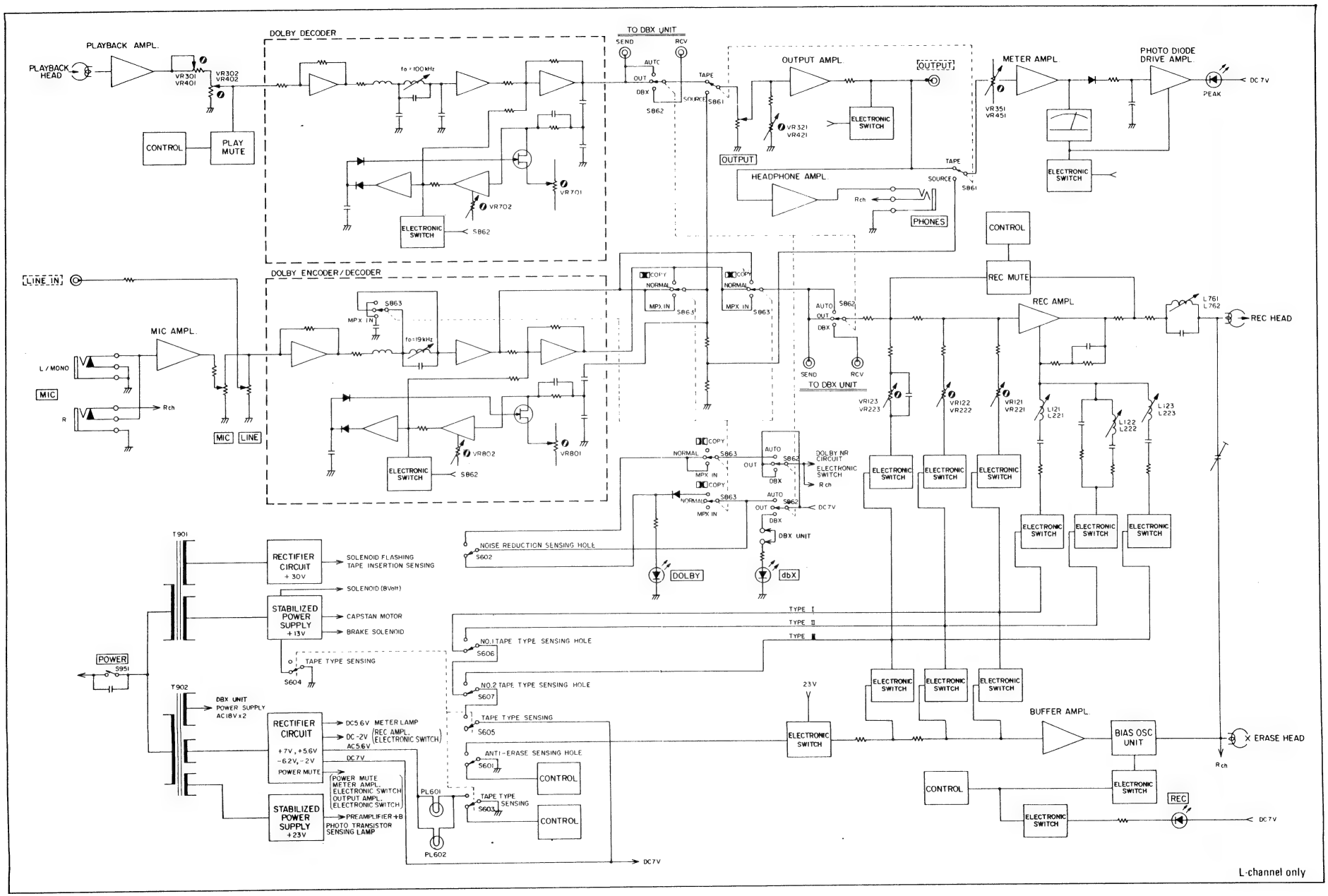
Fig. 8-2 Level Diagram —Playback—



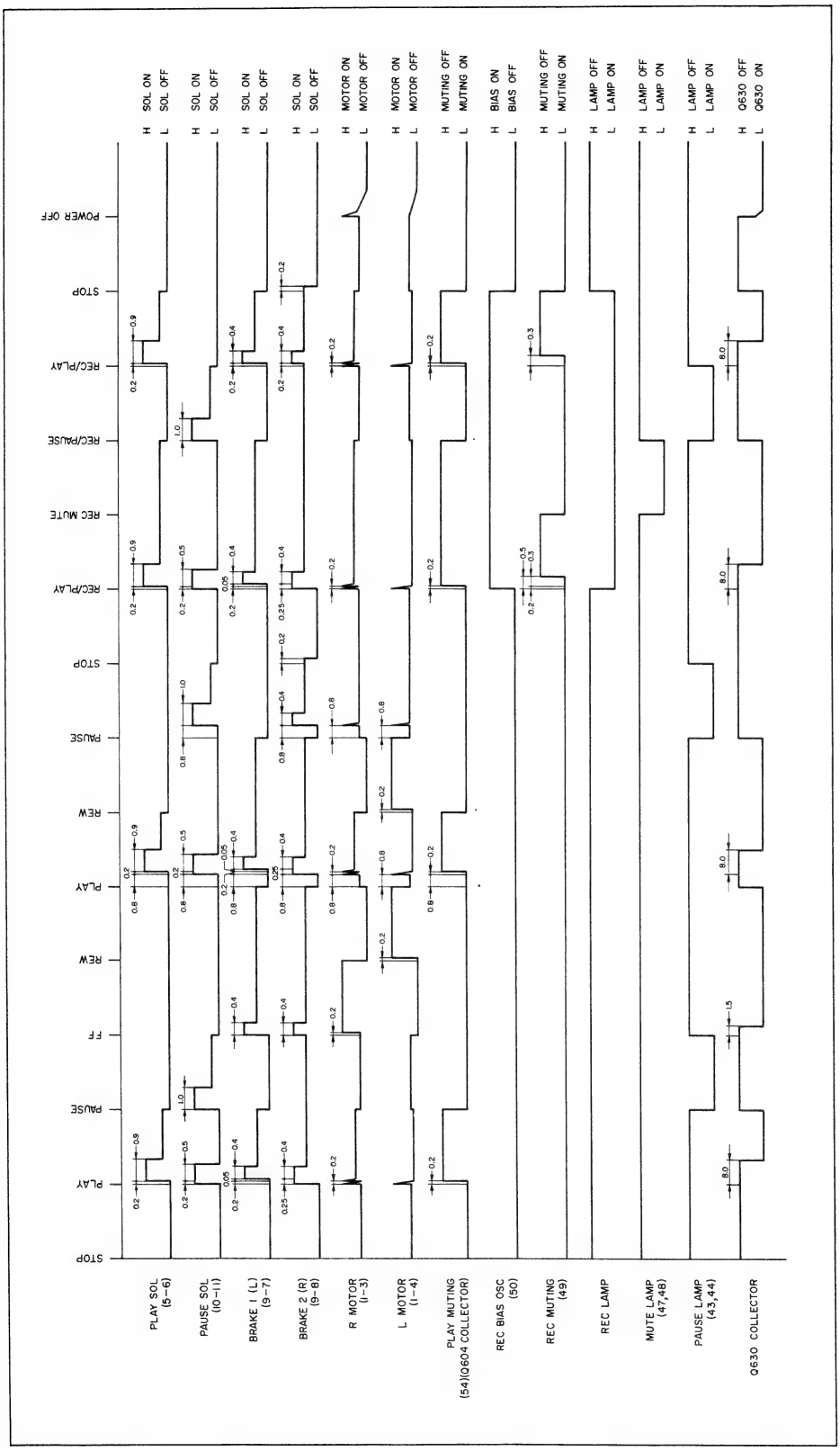
NOTE: 1. OUTPUT control and record control is positioned at specified Input level.
2. 0 dB = 0.775 V
3. Each level given in the diagram shows values when 400 Hz Specified Input level is applied.

Fig. 8-3 Level Diagram —Record—

Block Diagram



9. TIMING SEQUENCE CHART



CIRCUIT DESCRIPTION

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CONTROL CIRCUIT DESCRIPTION

The AL-700 uses a 3-motor drive system similar to Open Reel tape decks, with independent L and R brake solenoids, and a Play (PINCH) solenoid to drive the tape. Also it has a PAUSE (SHIFT) solenioid that is used to pull out the special tape from the ELCASET shell. The reel motors and solenoids are controlled by the circuits on the MOTHER PC Board 103: (FLIP FLOP), (SOLENOID DRIVE), (MOTOR DRIVE). The particular circuits of the ELCASET are used to automatically detect and select the tape type and noise reduction system using the condition of the ELCASET shell. Further, the TIMER CONTROL circuit of the AL-700 also has a device to perform this operation.
The operation of the control circuitry is outlined below. But, an explanation of the operation of the Capstan Motor Drive Circuit is omitted. As this description covers only the circuits and timing charts that are related to the operations and functions; for more circuit details and motor and solenoid timing, etc., please consult separate circuit diagrams and timing charts.

1. CONTROL PC BOARD (FLIP FLOP)

1-1 BASIC CIRCUIT

On the CONTROL PC BOARD, which is connected to the function keys, are 6 set-reset type Flip Flops. Each Flip Flop includes a BUFFER. This basic circuit is shown in Fig. 1 (a). In this description, the Buffer will be included and illustrated similar to Fig. 1 (b). Also, the Flip Flop signals will use the signals given in Chart 1.

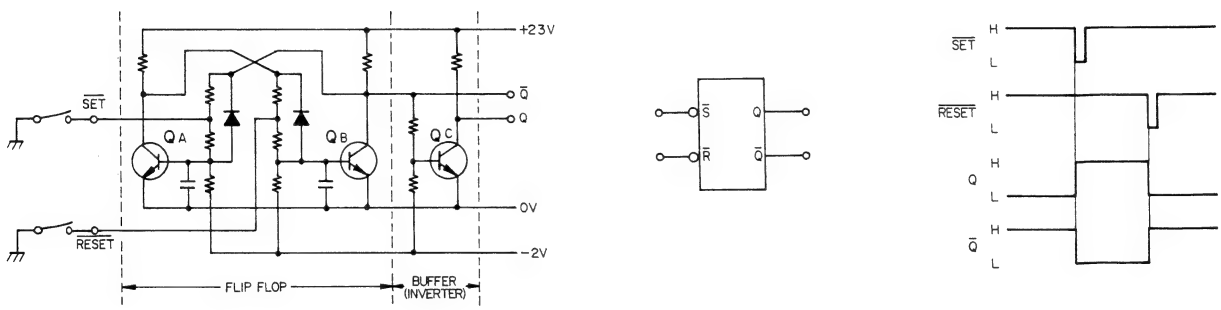

Fig. 1 Flip Circuit (Q; F.F-5 only)

FLIP FLOP DESCRIPTION

NO	QA	QB	QC	SET TERMINAL	RESET TERMINAL
FF-1	Q501	Q502	Q503	D501 (▶), D502 (PAUSE)	D503 (◀◀), D504 (▶▶), D505 (STOP),
FF-2	Q504	Q505	Q506	D506 (▶▶)	D507 (◀◀), D508 (PAUSE), D509 (STOP), D510 (▶)
FF-3	Q507	Q508	Q509	D511 (◀◀)	D512 (▶▶), D513 (PAUSE), D514 (STOP), D515 (▶)
FF-4	Q510	Q511	Q512	Q524	D518 (◀◀), D519 (▶▶), D520 (STOP), D521 (REC DEFEAT)
FF-5	Q513	Q514	Q515	D522 (PAUSE)	D523 (◀◀), D524 (▶▶), D525 (STOP), D526 (▶)
FF-6	Q517	Q518	Q519	Q526	D529 (◀◀), D530 (▶▶), D531 (PAUSE), D532 (STOP), D533 (▶)

CHART 1

1-2 REC CONTROL CIRCUIT

The logic symbols for the SET input circuit of Flip Flop-4 is shown in Fig. 2. This logic circuit provides the condition that the REC button and either the Play button or the PAUSE button must be pressed at the same time in order to set Flip Flop-4.

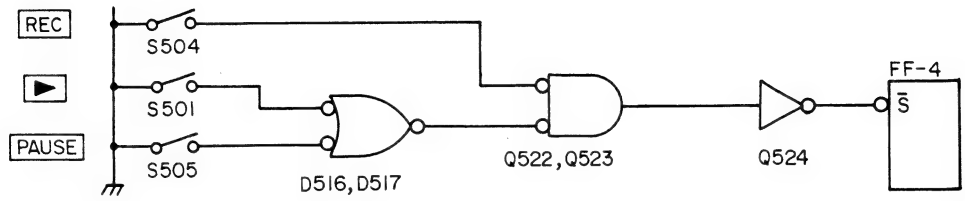

Fig. 2 F.F-4 Input Logic Circuit

1-3 REC MUTE CIRCUIT

The REC MUTE signal made by Flip Flop-6 input circuit is drawn in logic symbols as shown in Fig. 3.

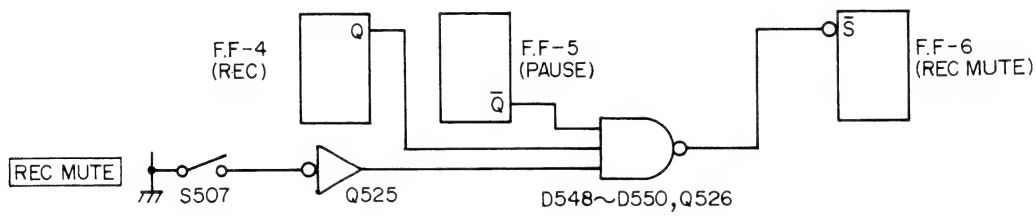

Fig. 3 F.F-6 Input Logic Circuit

As shown, the NAND gate, D548 to D550 and Q526, provides that Flip Flop-6 will not be set in PAUSE or REC PAUSE, but in REC mode. That is, a condition to set Flip Flop-6 is only in REC Play mode.
Flip Flop-6 will be reset by pressing any of the following keys: STOP, ▶ (Play), PAUSE, ▶▶ (F. FWD) or ◀◀ (REW).

1-4 INITIAL RESET CIRCUIT

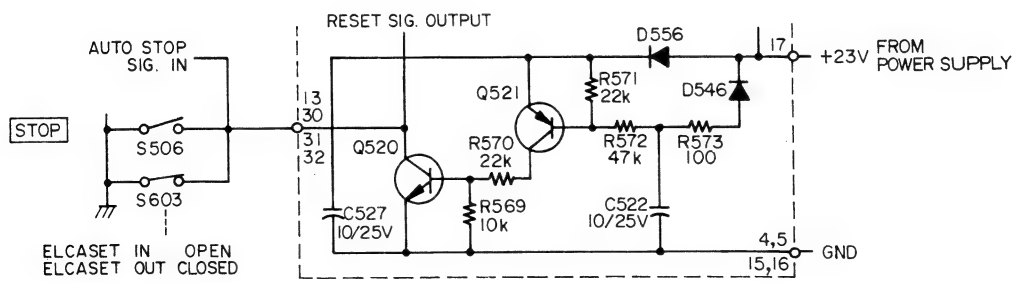

Fig. 4 Initial Reset Circuit

Q520, Q521 and the associated circuitry is the Initial Reset Circuit which will reset Flip Flops 1 to 6 when power is thrown ON to the AL-700.
When power is ON, terminal 17 is directly supplied with +23 V. At this instant, since C522 is not charged, Q521 is sufficiently biased and turns ON. At the same time, Q520 also is turned ON. By Q520 going ON,

Q520 collector goes to ground potential and this has the same effect as pressing the STOP button: a reset signal is sent to Flip Flops 1 to 6. When C522 charges, it turns OFF Q521 (also Q520) and the signal is released.
Since R573 and D546 are the discharge circuit for C522 which has a short time constant, this circuit provides reliable action even during repeated ON-OFF operations.
SW603, shown in Fig. 4 is the Cassette Shell detection switch and it will open when the ELCASET is properly installed.

2. CONTROL PC BOARD (SOLENOID DRIVE)

2-1 PLAY SOLENOID DRIVE CIRCUIT

The Play Solenoid operates only during Play or REC/Play modes and is used to apply pressure between the Pinch Roller and the Capstan Shaft.
Fig. 5 is the Play Solenoid Drive Circuit.
Fig. 6 is the Timing Chart.

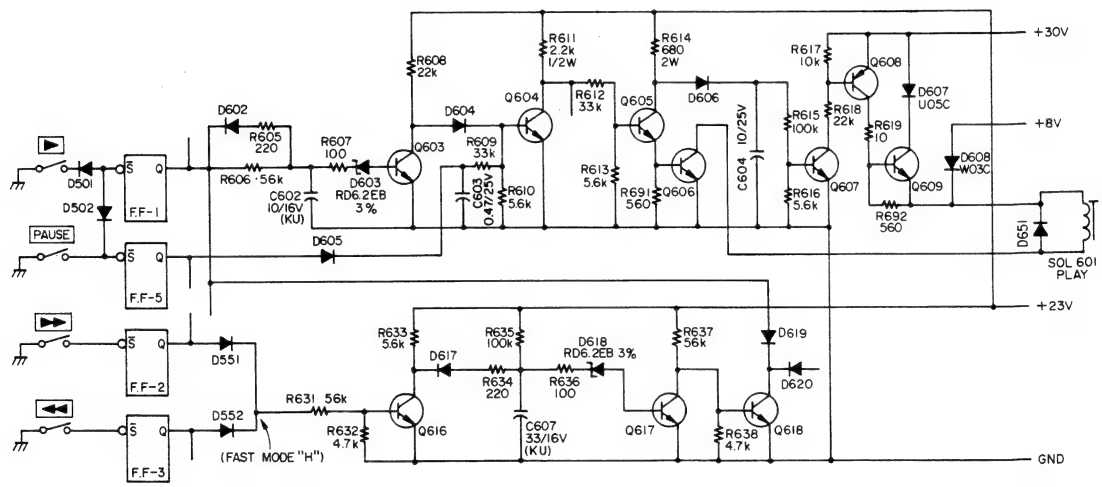

Fig. 5 Play Solenoid Drive Circuit

The Play Solenoid is energized by 30 V. After being momentarily energized it is held by 8 V. The momentary operation time interval is fixed by the discharge time constant path of C604 – R615 – Q607 and is fixed for approx. 900 mSec.
The change-over time from STOP to PLAY or REC Play, i.e., the energizing of the PAUSE (SHIFT) Solenoid and right Brake Solenoid has a delay of approx. 0.2 Sec. Also, when changing-over from F. FWD or REW mode to Play, there is a pause time of approx. 0.8 sec, for the protection of the tape.

2-2 PAUSE SOLENOID DRIVE CIRCUIT

The Pause Solenoid Drive Circuit is shown in Fig. 7. The Timing chart is shown in Fig. 8. The Pause Solenoid, the same as the Play Solenoid, uses 2 voltage sources, +30 V and +8 V for momentary operation. The Pause Solenoid operates in the Pause, REC/Pause, Play and REC Play modes and performs the role of pulling the tape out of the ELCASET. To do this, as previously stated, both the Pause Solenoid and the Play Solenoid operate in a mode (Play and REC/Play). This circuit is made so that the Pause Solenoid will operate approx. 0.2 seconds faster than the Play Solenoid.

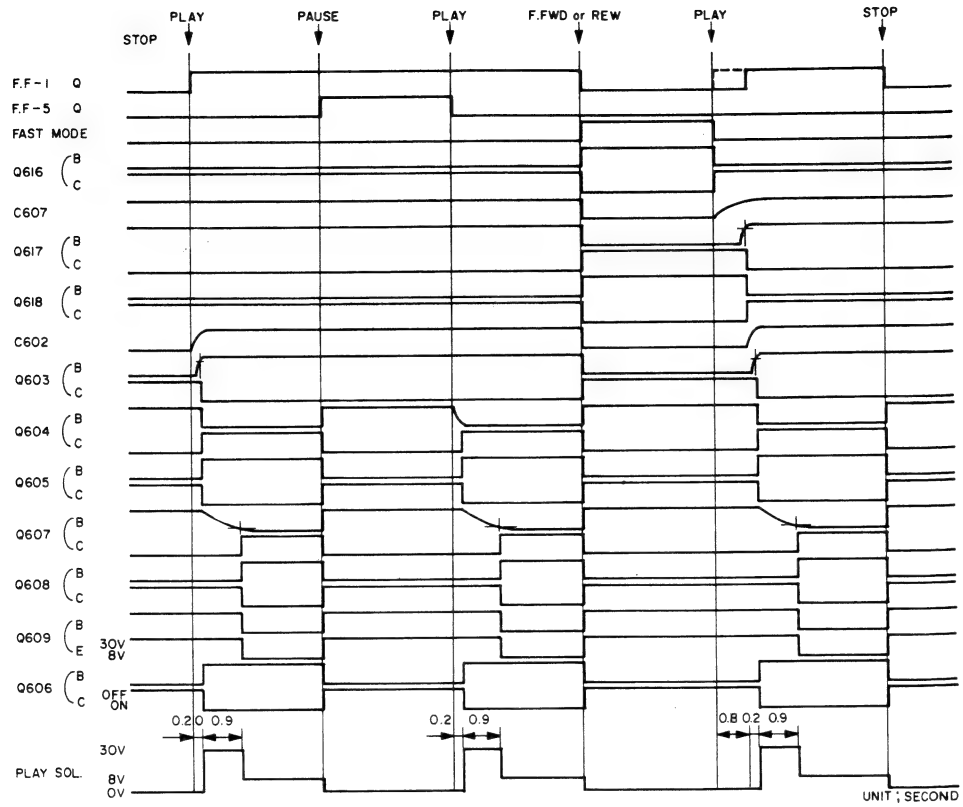

Fig. 6 Play Sol. Drive Circuit Timing Chart

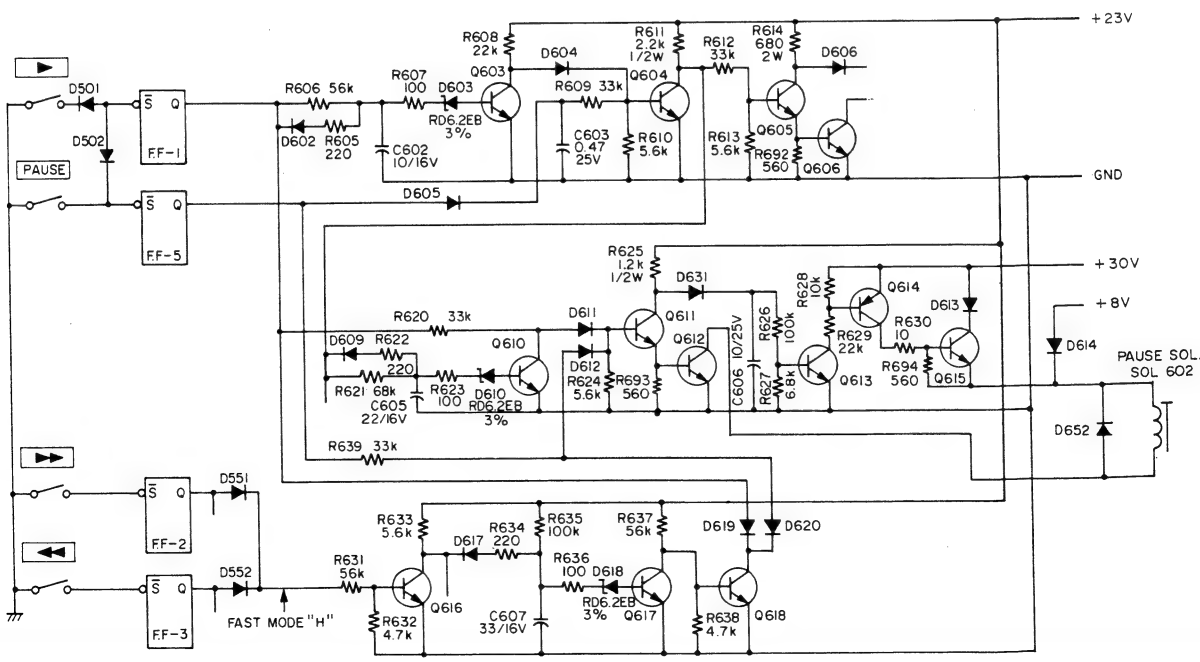

Fig. 7 Pause Solenoid Drive Circuit

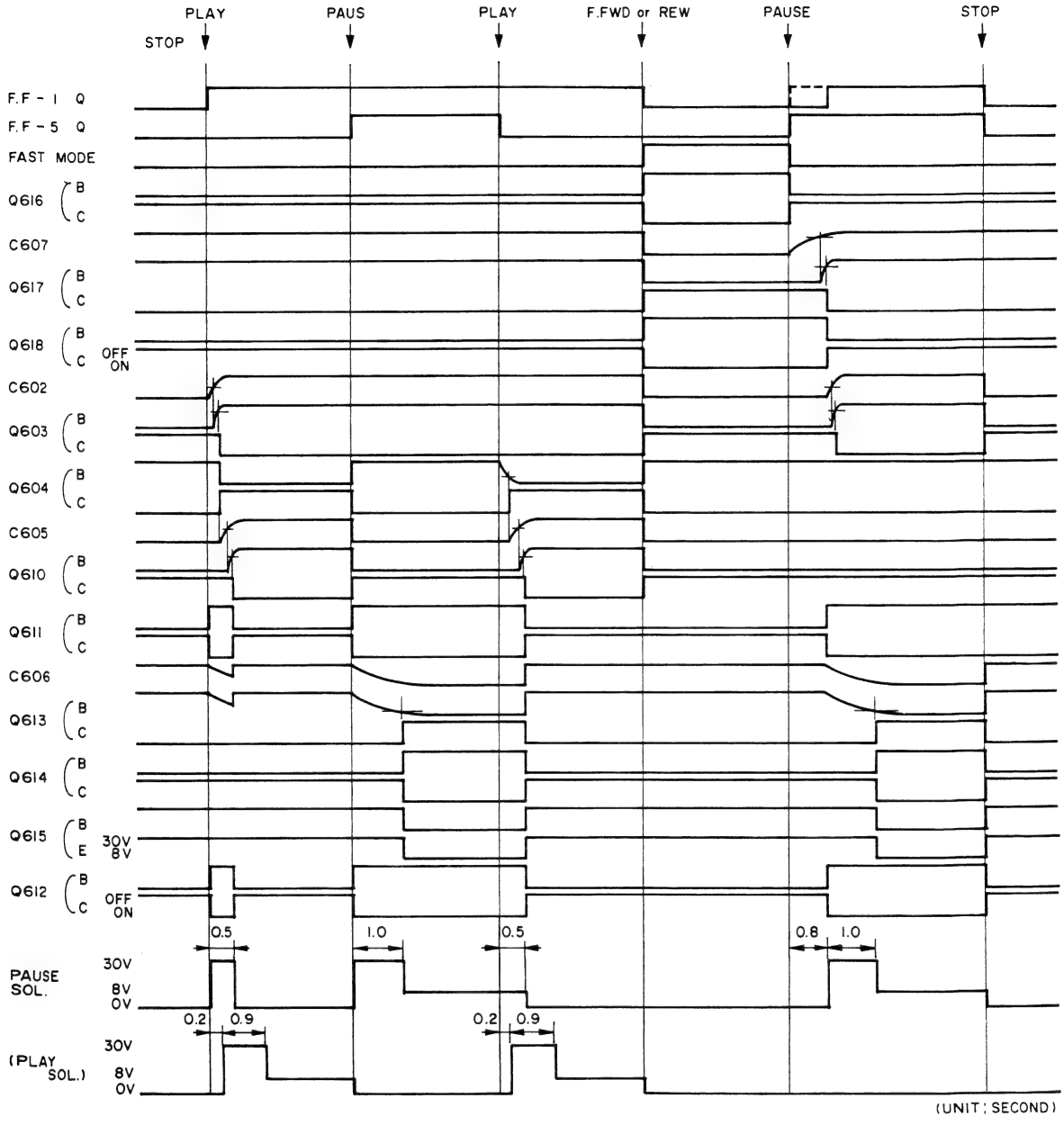

Fig. 8 Pause Solenoid Drive Circuit Timing Chart

2-3 BRAKE SOLENOID DRIVE CIRCUIT

Fig. 9 is the circuit. Fig. 10 is the Timing Chart.

The Brake Solenoid circuit operates the same as the Play Solenoid and Pause Solenoid circuits but, the Brake Solenoids use +30 V momentary operating voltage and +13 V holding Voltage.

During change-over time from F. FWD or REW mode to Play (including Pause), there is a braking period of approx. 0.8 Seconds. Also during change-over time from STOP, F. FWD or REW to Play mode – there is a sequence of Right Brake Solenoid & Pause Solenoid ON – 0.2 Sec – Play Solenoid ON – 0.05 Sec – Left Brake Solenoid ON, which operates. At Pause mode, the Right Brake Solenoid only goes ON (Brakes are released). In order to avoid tape slackening in any of these modes, this timing is essential to improve the reliability of the dual Capstan Drive system.

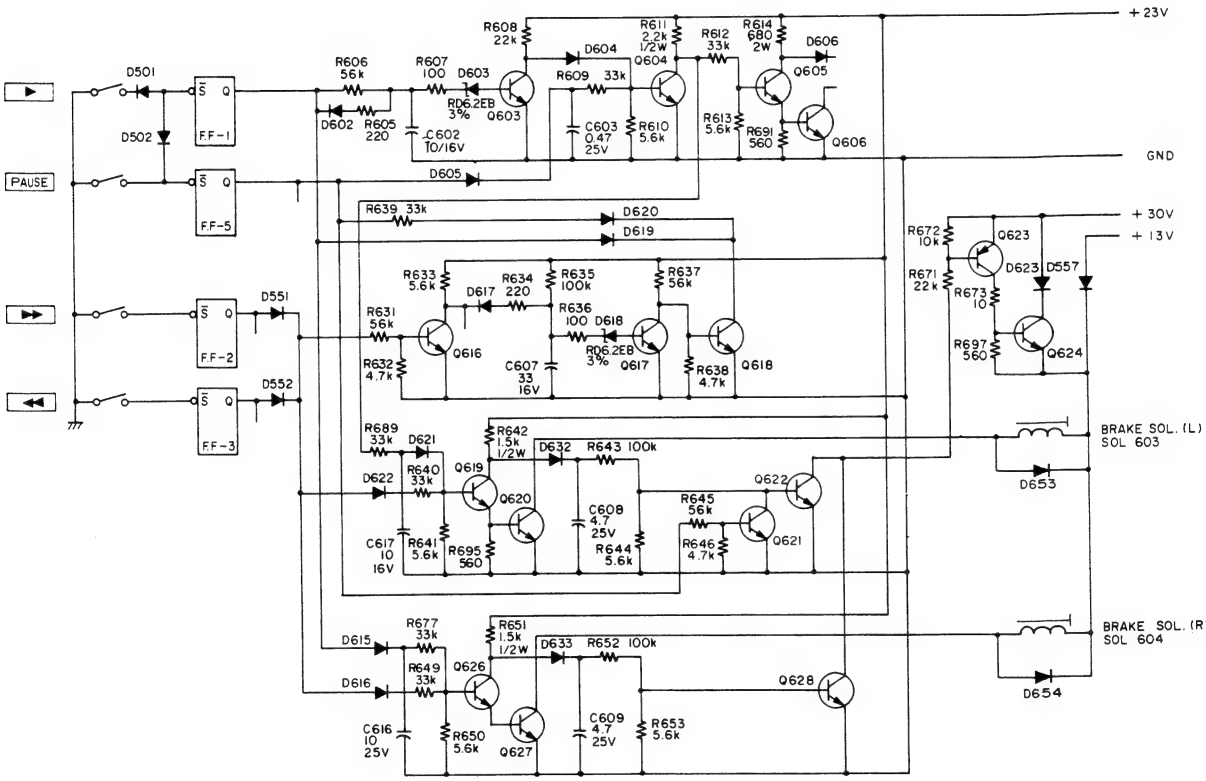

Fig. 9 Brake Solenoid Drive Circuit

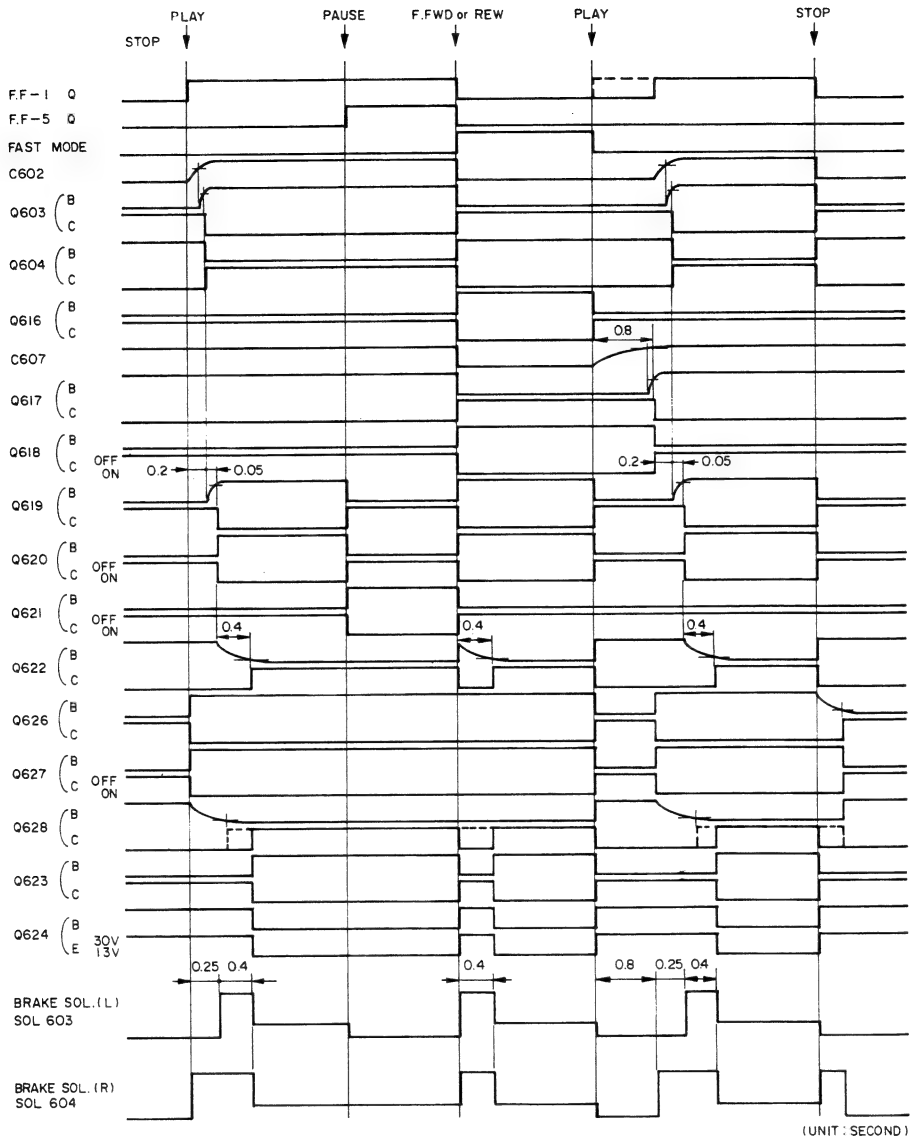

Fig. 10 Brake Sol. Drive Circuit Timing Chart

2-4 TAPE END DETECTION CIRCUIT

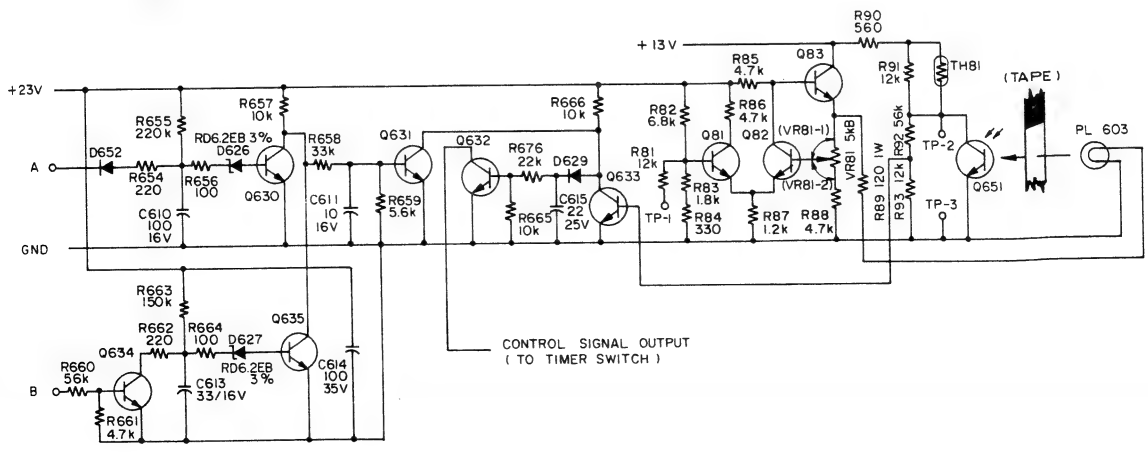

Fig. 11 Tape End Detection Circuit

Circuit diagram is shown in Fig. 11.
Tape End detection is done by a photo transistor which detects the transparent leader tape section at the end of the tape by using a photo sensing system.
Lamp PL603, shown in Fig. 11, is included in the left tape guide of the transport section.
When the light from PL603 is blocked off by the tape and is not received by the photo transistor Q651, Q651 is in OFF condition and the voltage at TP2 is approx. 4.5 V. At this time base current flows in Q633 and it is turned ON.
When the light passes through the transparent leader tape to Q651, it goes to a shorted condition and the voltage potential at TP2 decreases to less than approx. 1V and Q633 goes OFF. (The voltage at TP2 is influenced by dirt on the leader tape).
When Q633 goes OFF, if Q631 also goes OFF, bias current flows through the path of R666 – D629 – R676 – Q632 and Q632 is turned ON and the TAPE END CONTROL SIGNAL (GND LEVEL) is sent out.
The conditions necessary to turn Q631 OFF are: PLAY or REC/Play modes (A input HIGH), Fast Forward or Rewind modes (B input LOW). Timing chart is shown in Fig. 12.
Generally, since the sensitivity of photo transistors varies and the lamp intensity varies, the AL-700 has a lamp intensity (lamp current) control.
Q81 and Q82 are a Comparitive amplifier. The base potential of Q82 is always the same as the base potential of Q81 (determined by R82, R83 and R84 as + 5.5 V) and they operate similiarly. Since the base potential of Q82 is always fixed, the emitter potential of Q83 is determined by

$$\frac{(VR81 + R88) \times Q82_{Be}}{(VR81_{-2} + R88)}$$

The lamp current flowing through R89 is also determined. If VR81 is adjusted, the collector current of Q82 is increased and the base current of Q83 is decreased (or increased). By controlling the collector current of Q83, the base potential of Q82 can be held constant.
Short TP1 to TP3. With no tape between the Photo Transistor and the lamp (i.e., when a dummy cassette is loaded), adjust VR81 for less than 1 V potential at TP2.
Furthermore, since the output of the stabilizer which supplies +13 V power for the Photo Transistor and lamp is always zero when the tape end is detected while using Timer Control operation, the lamp will go out.
For this stabilizer operation, please refer to TIMER CONTROL CIRCUIT in paragraph 4.

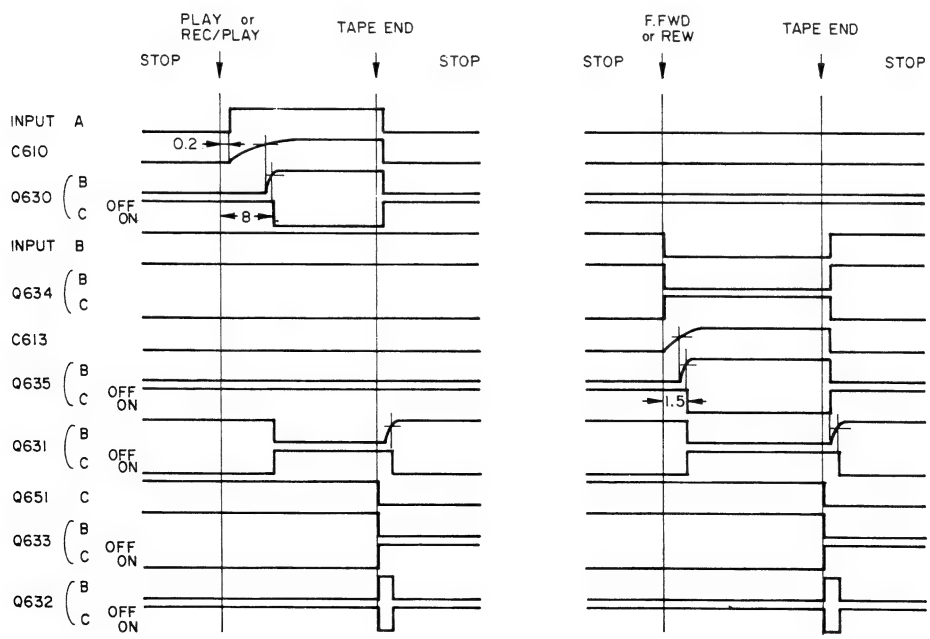

Fig. 12 Tape End Detection Timing Chart

3. CONTROL PC BOARD (MOTOR DRIVE)

3-1 TAPE ANTI-SLACKENING CIRCUIT

During timer recording or timer playback, etc., if the supplied power is interrupted, the deck will go to the STOP condition, but this may be different than the usual STOP condition. The solenoid return timing may be disturbed and the tape in the ELCASET shell may become loose. If the tape becomes very loose, the start time solenoid and motor timing may not be properly matched or the insertion/extraction of the ELCASET shell may become inconvenient.
In order to protect against this slackening of the tape at power OFF, the tape anti-slackening circuit is provided. A summary of that part of the circuit is shown in Fig. 13.

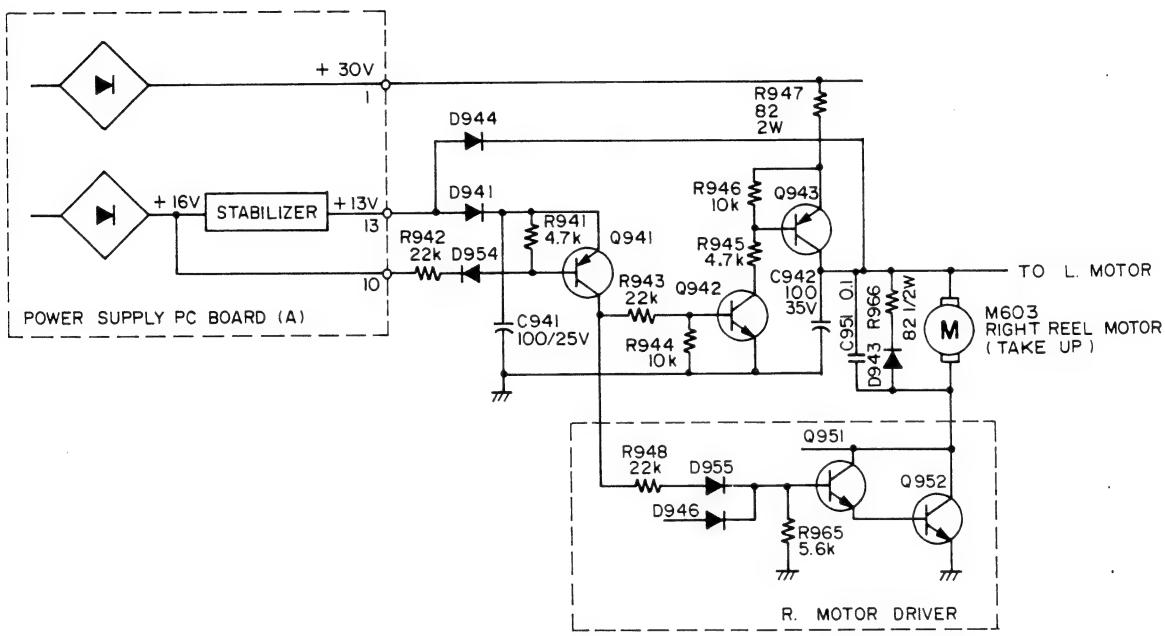

Fig. 13 Tape Anti-Slackening Circuit

Usually Q941 to Q943 are cut-OFF, the reel motor operates on the +13 V supplied through D944. When power is turned OFF, the +16 V and the +13 V supply suddenly drop off to ground potential and +13 V is maintained on the emitter of Q941 due to C941. If the base potential decreases to less than approx. 12.4 V, Q941 will turn ON. By Q941 turning ON, Q942, Q943 and Q951 and Q952 are turned ON. At this time, the voltage supplied on the +13 V line through D944 is very low. But, since the +30 V supply which is connected to the emitter has a high value capacitor, the voltage drop is gradual and the high voltage is maintained. Therefore, at the instant of power OFF the reel motor is driven by a high voltage.
Since the reels have the brakes applied during power OFF, if the right reel motor only turns with high torque, the slack is eliminated.
For the operation of the tape anti-slackening circuit the discharge of C941 progresses and the collector current of Q941 decreases. If the collector potential of Q941 decreases to approx. 1.8 V, Q942, Q943, Q951 and Q952 are turned OFF (and everything stops). During circuit operation, the current flowing through the motor (which is the +30 V discharge), and the voltage on R947 quickly drops. The time between the release of the motor and the high voltage drive lasts a very short time.

3-2 RIGHT REEL MOTOR DRIVE CIRCUIT

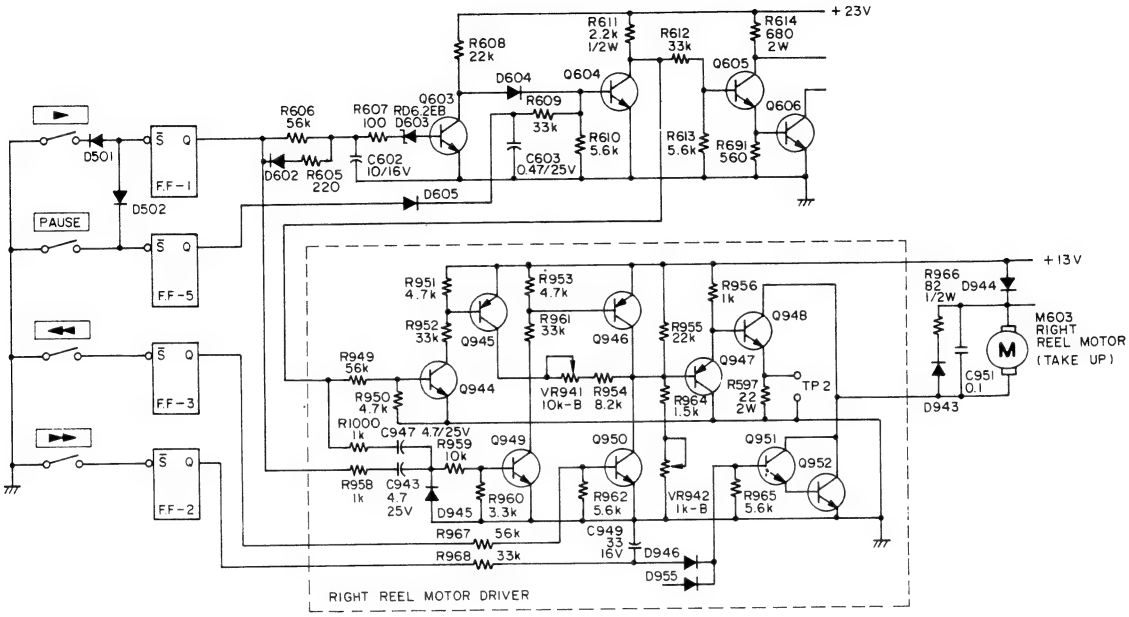

Fig. 14 Right Reel Motor Drive Circuit

1) STOP mode

In stop mode, Q944, Q945, Q946 and Q949 to Q952 are OFF. Q947 has high bias due to R955, R964 and VR942, and the large collector current flow makes the emitter potential become lower. Therefore, the bias on Q948 becomes low. In this condition, usually the voltage on TP2 is regulated by VR942 to approx. 1.32 V. (Motor current is approx. 60 mA).

2) PLAY mode

If FF-1 output goes High, Q949 has current through the path of R958, C943, and R959 and for a very short time only, Q949 goes ON. This causes Q946 to go ON and Q947 to go OFF. Q948 has sufficiently high bias and current flows through it and for a short time only, there is a large current flow through the motor. About 0.2 sec after FF-1 Q goes High, Q604 collector goes High. One of its outputs, through R1000, C947, and R959, turns ON Q949 for a short time and the described operation is repeated again.

Another output of Q604, through Q949, holds Q944 ON. Due to Q944 being ON, Q945 also goes ON. The result is that in regular Play mode, R955 is connected in parallel to the series circuit of VR941 and R954. Compared to Stop mode, Q947 bias becomes low (shallow) and Q948 bias becomes high (deep). At this time the output voltage at TP2 is approx. 2.86 V. (Motor current is about 130 mA).

3) PAUSE mode

In the regular Pause mode, Q604 collector is at Low level, which is the same as in Stop mode.

4) F. FWD mode

In fast forward mode, when FF2 output goes High, this output passes through R968 and D946 and turns ON Q951 and Q952. But, due to the charging time of C949, there is a delay of about 0.2 sec before Q951 and Q952 turn ON. During this delay time, the brakes are released. By Q952 going ON, +13 V power is fed directly to the motor.

5) REW mode

FF3 Q output turns ON Q950, turns ON Q947 and turns OFF Q948. In this mode, the Right Reel Motor torque is reversed and produces a counter e.m.f. D943 and R966 form a discharge circuit for that counter e.m.f. The brakes perform the role of absorbing that counter e.m.f.

3-3 LEFT REEL MOTOR DRIVE CIRCUIT

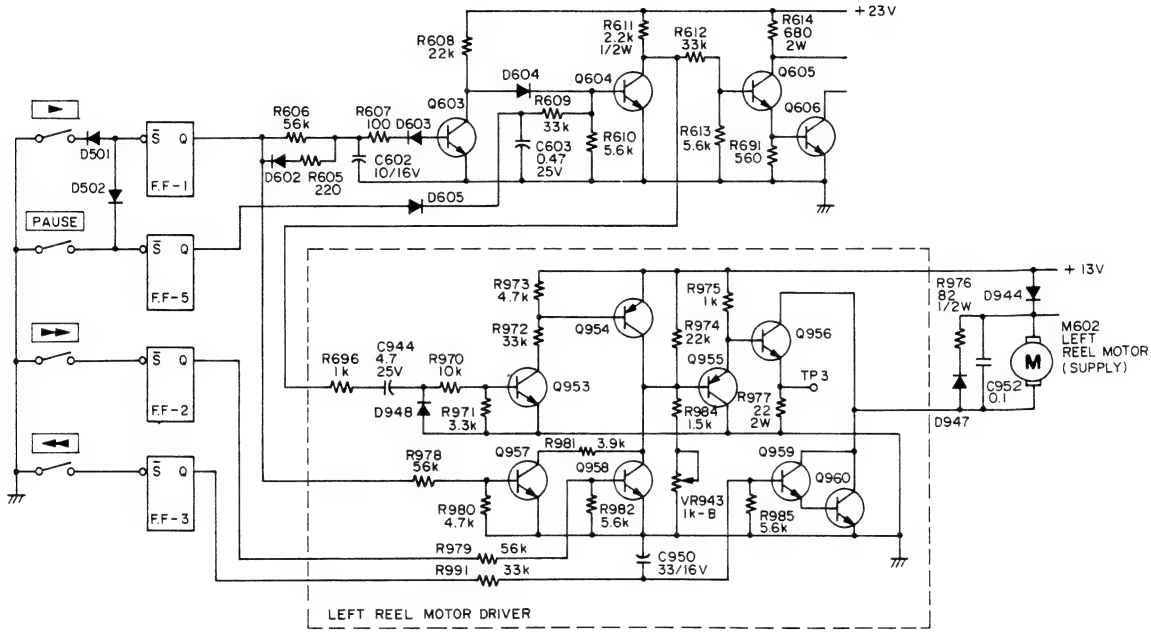

Fig. 15 Left Reel Motor Drive Circuit

1) STOP mode

R974, R984 and VR943 provide bias to Q955, current flows through the motor – Q956 – R977, and Q955 is set. In Stop mode, voltage at TP3 is approx. 1.32 V (motor current is approx. 60 mA).

2) PLAY mode

When FF1 Q goes High, for an extremely short time Q953 goes ON, Q954 goes ON, Q955 goes OFF and Q956 goes ON and a Large current flows through the motor. After about 0.2 sec, when Q604 collector goes High, Q957 goes ON and R981 is connected in parallel to the bias circuit of Q955. For this reason, the emitter current of Q955 increases, and the voltage drop across R975 becomes large and bias to Q956 becomes small. As a result, motor current is reduced. At this time voltage at TP3 is approx. 0.99 V. (Motor current is approx. 45 mA).

3) PAUSE mode

In regular Pause mode, the same as in Stop mode, motor current is approx. 60 mA.

4) F. FWD mode

Q958 is ON, Q955 is ON, Q956 is OFF and motor operating current is rejected.

5) REW mode

Q959 and Q960 are ON and the motor is operated directly on +13 V power.

3-4 REC MUTING CIRCUIT

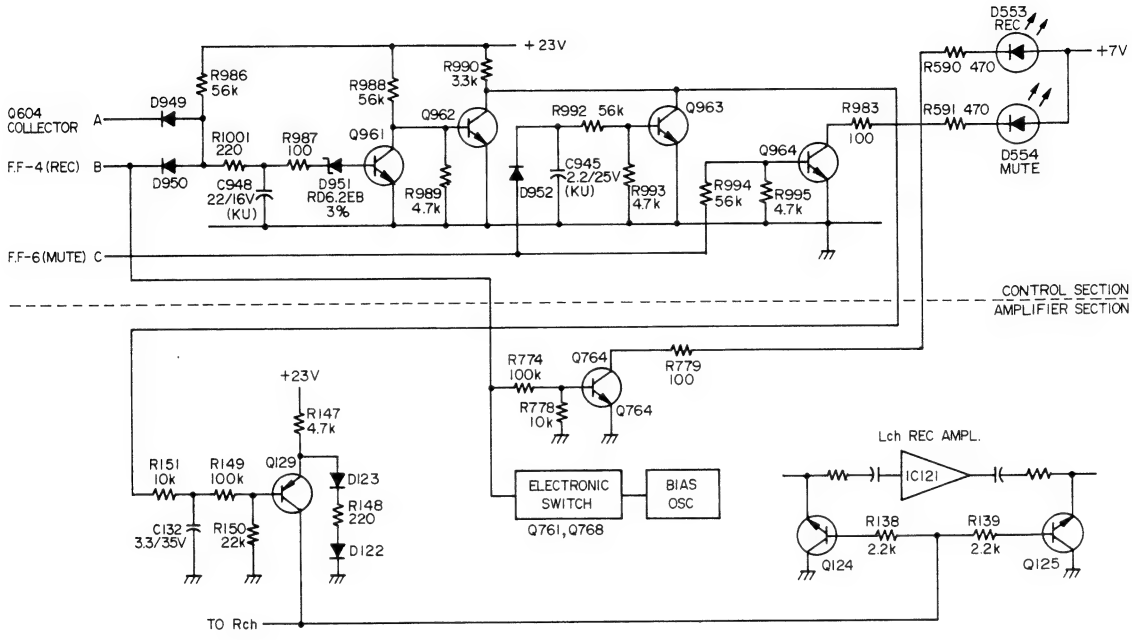

Fig. 16 Rec Muting Circuit

Input A is connected to the collector of Q604 and goes High only during Play or REC/Play. Input B is Q output of FF4 and goes High only during REC/PLAY or REC/PAUSE mode. D949 and D950 comprize a positive AND circuit and as a result, the base of Q961 goes High only in REC/Play mode, and Q961 is turned ON.

When Q961 goes ON, Q962 goes OFF, Q129, Q124 and Q125 go OFF and Muting of the REC AMPL is released.

If the REC MUTE key is pressed during REC/Play mode, C input goes High, Q963 goes ON, Q129, Q124 and Q125 go ON and the REC AMPL output is muted. At the same time, Q964 goes ON and the MUTE Indicator lights. When FF4 output is High (REC/Play or REC/Pause modes), in spite of the presence of the MUTE signal, the BIAS OSC operates and the REC Indicator lights.

3-5 MEMORY COUNTER CIRCUIT

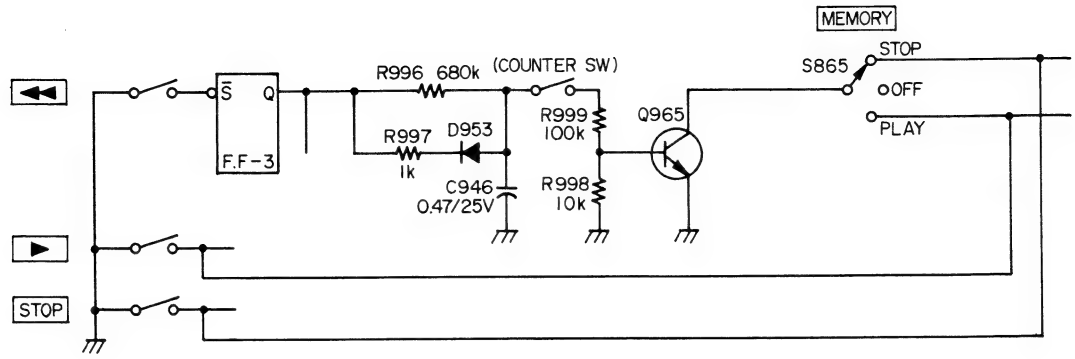

Fig. 17 Counter Memory Control Circuit

When the deck is in the Rewind mode, FF3 Q output goes to a High level. When tape is rewinding and the counter indication reaches 999, counter switch closes and Q965 goes ON. At this time, if the MEMORY switch, as shown in Fig. 17, is set to STOP position, Q965 going ON has the same effect as pressing the STOP key and the deck will stop. If the MEMORY switch is set to the PLAY position, the deck will go into Play mode the same as if the Play key were pressed. If the MEMORY switch is in OFF position, the tape will rewind to TAPE END and automatically stop.
The auto end stop circuit has priority over the MEMORY Control circuit and if the MEMORY switch is in REC or PLAY position and the tape reaches end stop before the counter reaches 999, at that time the deck will go to stop mode.

4. TIMER CONTROL CIRCUIT

The TIMER control circuit allows the AL-700 to be used with an external Timer to turn power ON and OFF for timer controlled Recording and Playback. This circuit is shown in Fig. 18.

4-1 START CIRCUIT

Assume the TIMER switch S864 shown in Fig. 18 is set to REC position. When AC power is supplied to the AL-700 by the Timer, immediately the Stabilizer operates to supply +23 V to point A. This voltage passes through C929 and is given to the base of Q924 and to the base of Q923. These transistors are turned ON. Since the collector of Q923 is connected to the Play key (and the collector of Q924 is connected to the REC key.), the deck goes into REC/Play mode. When the TIMER switch is in PLAY position, the deck will go into Play mode because of Q923. When C929 finishes charging, Q923 and Q924 go OFF. When the power supply is cut off, the potential on point A decreases, the potential on C929 discharges through D927 and R938 then the start is finished. The tape can continue to its limits many times in start stop recording and playback.

4-2 STOP CIRCUIT

The Stop circuit described up to now, during Timer recording and Playback, is the Auto Stop circuit which operates when the tape raches the end of tape. If the TIMER switch, S864 is set to REC or PLAY, terminal 3 has +23 V power and terminal 2 is connected to the TAPE END detection circuit output.
During recording or playback, when the tape reaches TAPE END, ground is applied to terminal 2. Because of this, Q921 and Q920 are turned ON. Q920 going ON puts out a Stop indication signal and the deck goes to Stop mode. At the same time, the ground from terminal 2, causes relay K915 to operate. The contacts of K915 release the base of Q922 from ground and at the same time K915 becomes self-holding. Due to this, Q922 goes ON and the control voltage of the Stabilizer on POWER SUPPLY PC Board A becomes zero and output is stopped. As a result, the supply voltage to the Capstan Motor, Reel Motor and Solenoids is cut-off. In normal End Stop the Capstan Motor is turning but in Timer control End Stop the Capstan Motor is stopped. Since K915 is self-holding, in order to release it, the TIMER switch has to be set to OFF position.

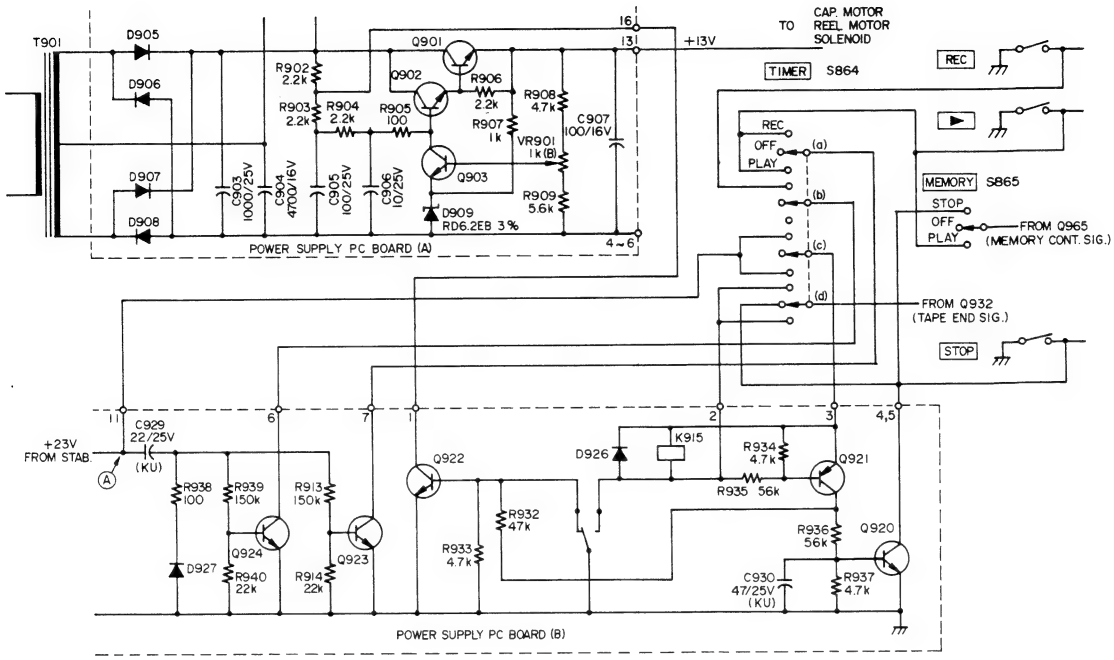

Fig. 18 Timing Control Circuit

5. AUTO SELECT CIRCUIT SUMMARY

There are two kinds of Auto Select: Tape Type detection and (Dolby) NR System detection.

5-1 TAPE TYPE AUTOMATIC DETECTION AND SELECTION

Refer to Fig. 19.

The FLCASET comes in 3 types: Type I, Type II and Type III. The ELCASET Shell is equipped with 2 Tape Type detection holes, the condition of which is used for detection. According to the Type, the Record Level, Equalization Characteristics and Bias are automatically selected.

S605, shown in Fig. 19, is the ELCASET detection switch which operates if the ELCASET is properly loaded in the correct position.

Q121 to Q123 switch the recording level compensation circuit.

Q126 to Q128 switch the Recording characteristic Equalization circuit.

Q765 to Q767 change the operating point, through Q763, the BIAS OSC supply voltage is controlled and the BIAS OSC output level is changed.

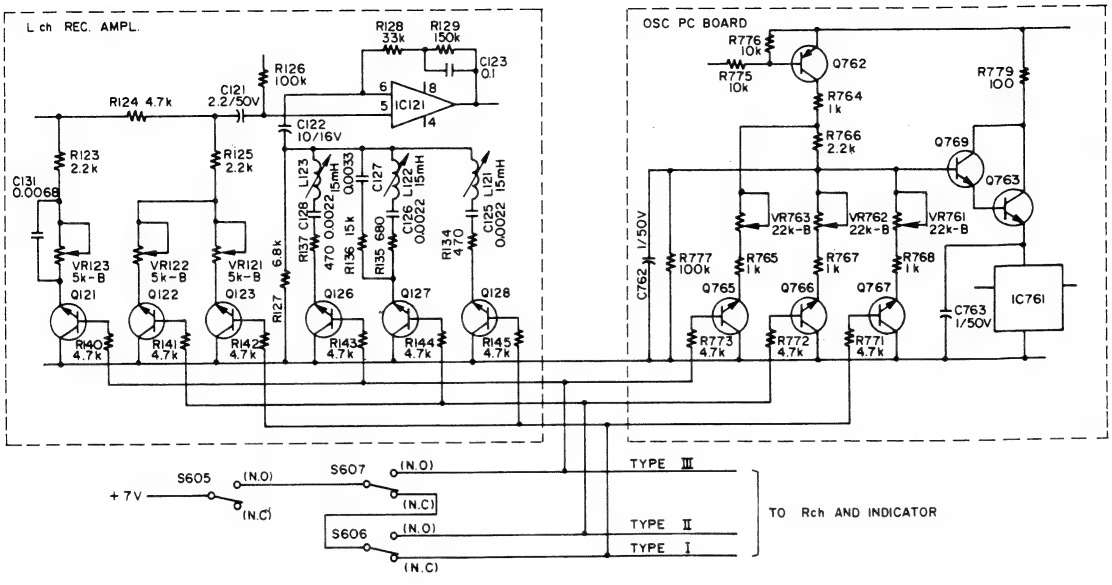

Fig. 19 Tape Type Automatic Detection and Circuit

5-2 NR SYSTEM DETECTION

Using the Dolby detection holes of the ELCASET shell, the Dolby NR system is switched IN or OUT automatically.

This circuit is shown in Fig. 20.

S602 is the detection switch. When the Dolby NR switch (S862) is at OUT or EXT (dbx) position, the electronic switch in the Dolby Unit is supplied +7 V and the switch is switched ON to deactivate the Dolby circuit. When S862 is in AUTO position and the INPUT/MPX switch, S863, is at NORMAL or FM (MPX IN) position, if there is no tab in the Dolby detection hole of the ELCASET shell (when Dolby recording), S602 moves in and the electronic switch is turned OFF and the Dolby circuit is activated. At the same time, the DD AUTO indicator lights.

When S863 is set for DOLBY COPY, regardless of whether the tab is inserted in the Dolby detection hole or not, the electronic switch will be OFF and the Dolby circuit will stay in operation and the indicator will remain lit.

Also, when S862 is in EXT (dbx) position and the power cord of the DBX Unit (RX-10) is connected to the POWER SUPPLY Jack on the rear panel of the AL-700, the EXT (dbx) Indicator will light.

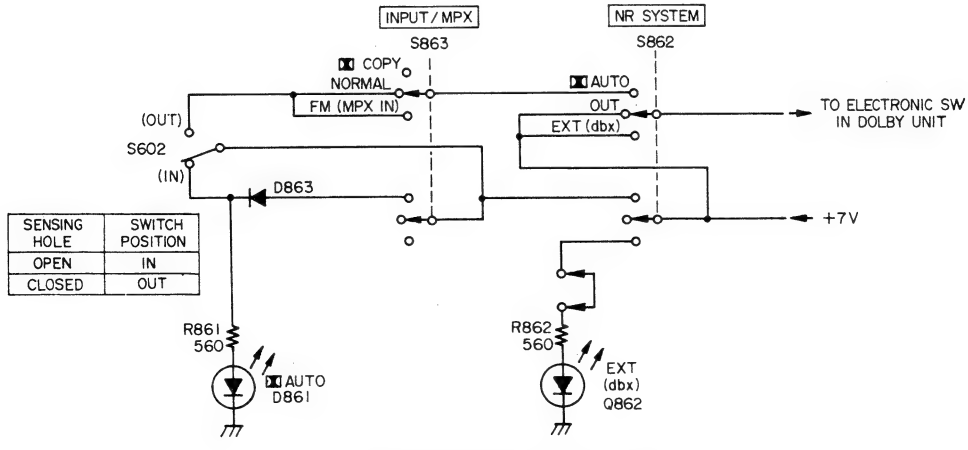

Fig. 20 NR System Detection

AMPLIFIER CIRCUIT DESCRIPTION

The AL-700 is a 3-head type tape deck. Therefore the amplifier section's playback and record circuits are arranged independently. In the Amplifier section there are the Headphone circuit, the Meter circuit, the Control circuit, etc. As for the noise reduction circuit of the AL-700: the Dolby noise reduction system is built-in to the AL-700 but, the RX-10 DBX UNIT can also be attached and therefore the DBX System can also be used for recording and playback due to the system design. The signal flow through the block diagram of the Amplifier Section is explained below. Only the L channel is explained.

1. PLAYBACK AMPLIFIER UNIT

Circuit is shown in Fig. 1.
Q301 and Q302 form the Playback Amplifier which amplifiers the playback signal from the playback head and at the same time provides playback frequency response equalization. The gain of the circuit is approx. 33 dB at 400 Hz at point A.

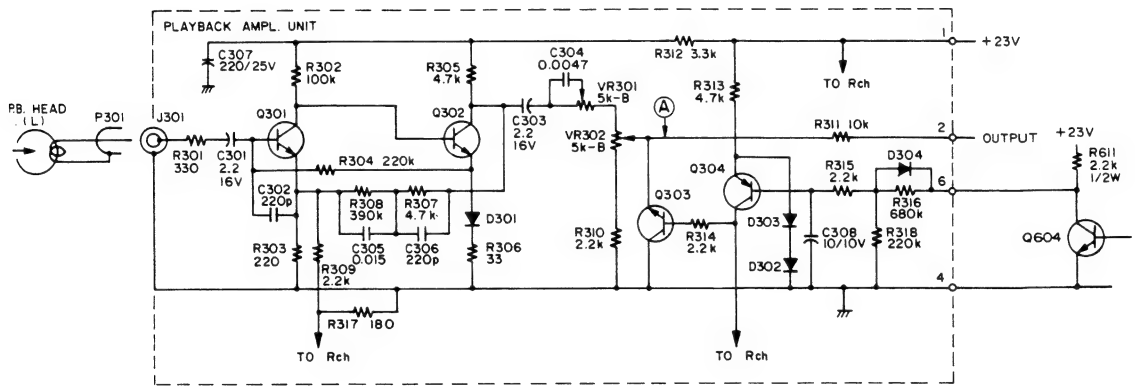

Fig. 1 Playback Ampl Unit

Playback equalization is determined by R308, R307, C305 and C306 to give a characteristic similar to that shown in Fig. 2.
For the low frequencies, in order to reduce the open loop gain, the 3180 μSec gain is not used. Feedback Circuit resistor R317 shown in Fig. 3 is connected to the L channel and the R channel to form an differential amplifier. This circuit suppress the output of the channel which receives the lower input signal level.

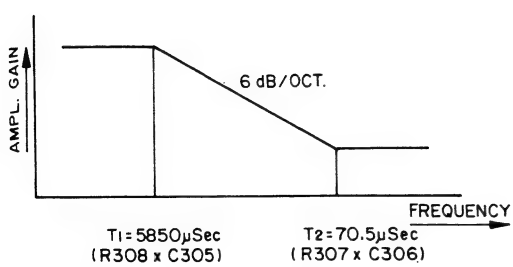

Fig. 2 Playback EQ Curve

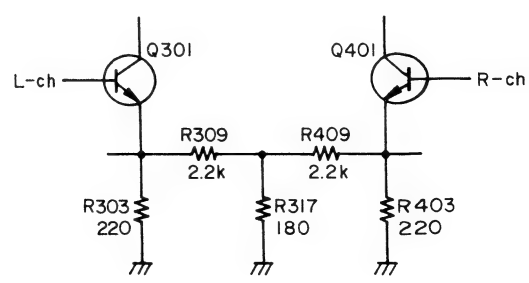

Fig. 3 Differential Ampl

when both the L and the R channels are fed the same composite signal. For example, when the L channel input feeds into the R channel input at the same time, the signal at the emitter of Q301 cause the feedback signal to Q401to be amplified and decreases the gain of the R channel. This operation improves the channel separation up to about 6 to 10 dB.
When playing back monaural tapes, because of the composite L and R channel input, the feedback circuit is in a balanced condition and there is no gain reduction.
VR301 is for high frequency compensation and VR302 is for playback level compensation. (Fig. 1).
Q303 and Q304 are the Muting Circuit.
For STOP, F. FWD, REW and PAUSE modes, Q604 is ON, terminal 6 goes to ground potential, Q303 and Q304 go ON and muting is applied.
For Play and REC/Play Q604 is OFF, terminal 6 is supplied +23 V through R611 and Q304 and Q303 are turned OFF and Muting is released.
D304 in the discharge circuit of C308 establishes the relationship that the charge time constant of C308 is much greater than the discharge time constant. That is, during Play mode, while muting is released, there is a delay. During STOP mode, etc., it is made to apply muting as quickly as possible.
D302 and D303 form a circuit to provide regulated voltage to the emitter of Q304. If D302 and D304 were not in the circuit the emitter potential of Q304 would be changed by the collector current and unstable operation would occur.
The collector of Q303 goes to ground. The AC impedance when Q303 is ON (in other words, the opposition to the signal) is not much different using the emitter ground or the collector ground. But, at that time, the DC potential at point A for a collector ground is approx. 0.4 mV and for an emitter ground is approx. 4 mV. In other words, the difference in ON/OFF click noise is approx. 20 dB. For this reason the grounded collector configuration is used. This type circuit uses the same path for the AC signal with the exception of the Playback Amplifier location.

2. DOLBY DECODER UNIT

The Playback section of the DOLBY UNIT has terminals 9 through 11 of the PC board "strapped" (shorted together) to provide Decode operation.
For the Dolby circuit operation, please refer to section 6 DOLBY ENCODER/DECODER. A filter circuit is provided prior to the Dolby Circuit.
The Playback Decoder filter is similar to the circuit shown in Fig. 4.
L701 and C707 form a 30 kHz low pass filter and L702 and C705 form a 100 kHz band eliminator. The former suppresses the maximum playback frequency region and protects the NR circuit from mis-operation due to unnecessary noise. The latter section forms a bias trap.

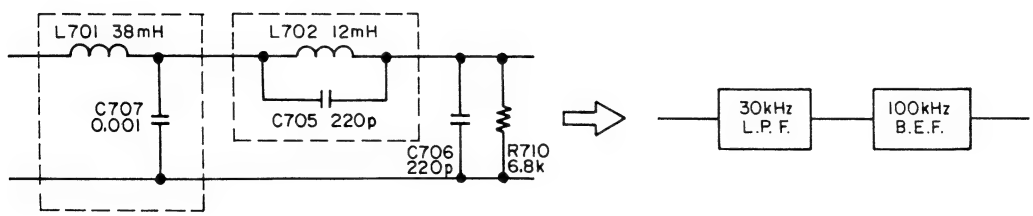

Fig. 4 Filter Circuit (Decoder)

3. OUTPUT AMPLIFIER UNIT

This unit is comprized of the LINE OUTPUT AMPL, PHONE AMPL and the MUTING circuit.
The LINE OUTPUT AMPL. gain of Q321 and Q322 is the ratio of the front stage output impedance (R322, 150 k ohms) and the amplifier input impedance (R326, 220 k ohms) and is approx. 3.4 dB.
The PHONE AMPL. uses a basic complimentary single end push-pull (SEPP) circuit.
Q323 is the muting circuit, connected as shown in Fig. 5, to suppress click noise during power ON/OFF operations.

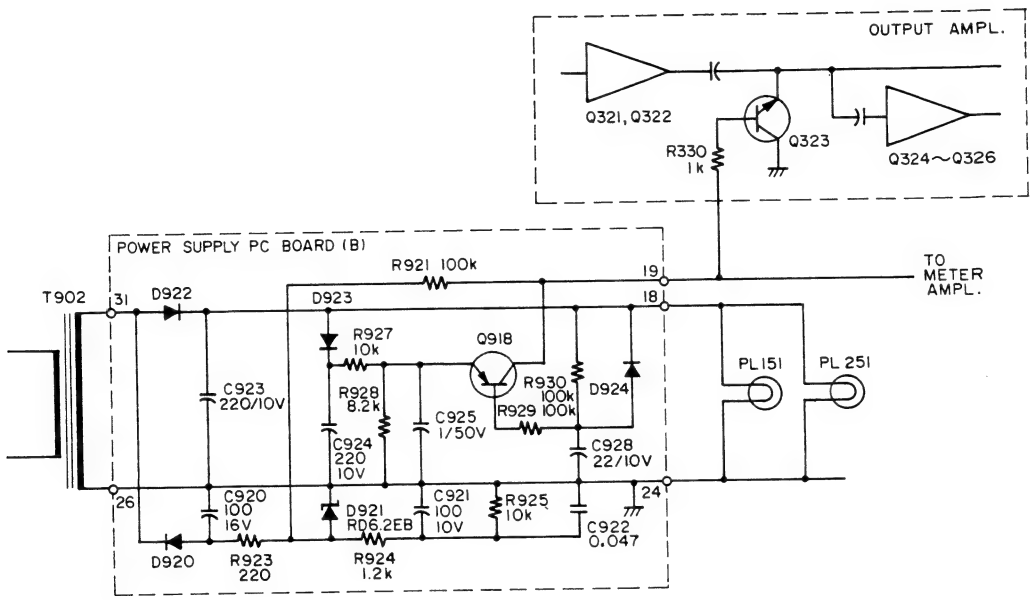

Fig. 5 Power Muting Circuit

When power is turned ON, Q918 goes ON and turns ON Q323 and output muting is applied until C928 charges through R930.
When power is turned OFF, C928 instantaneously discharges through the path of D924, PL151 and PL251. Because the base potential of Q918 decreases, Q918 goes ON and current flows through the path of C924, R927, Q918, R330 and Q323 is turned ON and muting is applied.
When Q918 is OFF (muting released), since the line between the collector of Q918 and the base of Q323 has an unstable potential, and besides, wiring lengths are long, hum noise, etc., are easily picked up. If there is noise on this line it will be amplified by Q323 and a high level noise will appear at the output terminal. To prevent this from happening, this line potential is stabilized and Q323 is cut-off completely. For this, –6 V of reverse bias is applied via R921.
Because of this reverse bias and the large output amplitude of the OUTPUT AMPL., Q323 uses separate muting. Since transistors have different $V_{B\text{-}E}$, 25 V and pressure tight types are used.
Q325 and Q326 of the Phone Ampl have symmetrical ripple and to reduce distortion, these are matched-pair transistors.

4. METER AMPLIFIER UNIT

Q352 and Q353 form a peak level indicator driver. To operate the LEDs with a small signal current, a Darlington connection is used for current amplification.

5. MIC AMPLIFIER UNIT

The MIC AMPL input to the first stage amplifier can accept a level up to the saturation level of 100mV. Since the MIC AMPL gain is approx. 35 dB, the output margin can be up to 5 Vrms.
With the standard MIC input level of –60 dB/0.775 mV, the output will be –25 dB/43.6 mV.

6. DOLBY ENCODER/DECODER UNIT

In this unit there is a 2 stage amplifier and MPX FILTER in addition to the Dolby Processor.

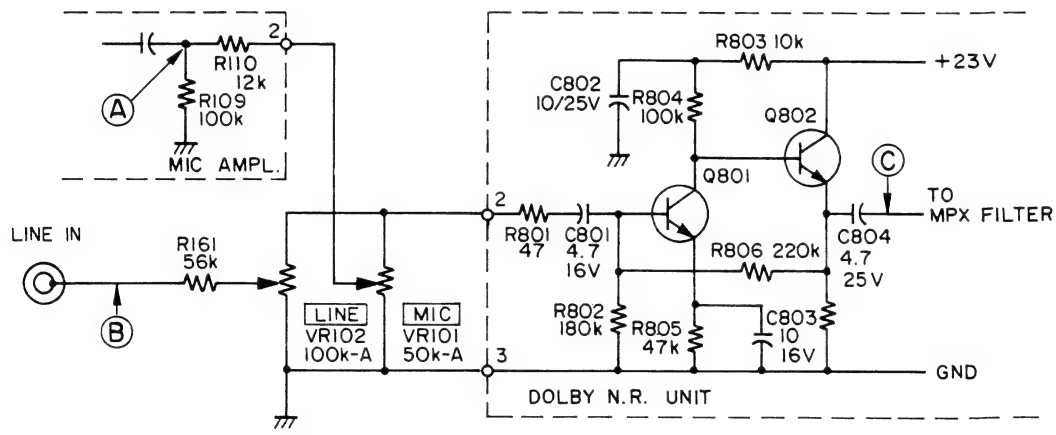

Fig. 6 Mixing Ampl

As the open loop gain of Q801 and Q802 amplifier is infinite, when the amount of feedback is sufficiently large for an ideal amplifier, at the base of Q801 the input signal and the feedback signal value are equal and if their phase is opposite, the signal level is zero. That is, impedance to the assumed ground point is zero. At this ideal condition, there is no interference from either the MIC or LINE circuit. The amplifier gain at this time, when the MIC and LINE VR's are at maximum positions, between points A and C is determined by the ratio of R110 and R806, and between points B and C is determined by the ratio of R161 and R806. The gains are, respectively, approx. 25 dB and approx. 12 dB.
MPX FILTER is connected as shown in Fig. 7.
When the INPUT/MPX switch is set to FM (MPX IN) position, the parallel resonant circuit L802 and C805 eliminates the 19 kHz signal. When the switch is in the NORMAL position, L802 and C805 are shorted out and L801 and C806 form a low pass filter.
Furthermore, at ⊡⊡ COPY position (on U.S.A. and Canada models) the MPX FILTER is IN for Dolby FM stations. On the other models, MPX FILTER is OUT. The Dolby Encoder/Decoder Unit, with the exception of the MIXING AMPL and MPX Filter, are referred to as the Dolby Processor.
Basic construction is shown in Fig. 8.
Q811 going ON or OFF determines whether the Dolby Processor is in operation or not.
The combination of the NR System switches, INPUT/MPX switch and cassette Dolby detection hole switch, S602, provide control using the electronic switches.
Whether the Dolby Processor works as an Encoder or a Decoder is determined by the position of a jumper on the external terminals 8, 9 and 11 as shown in Fig. 8.
This external connection circuit is explained in the following section. Here we will explain the internal operation of the processor.

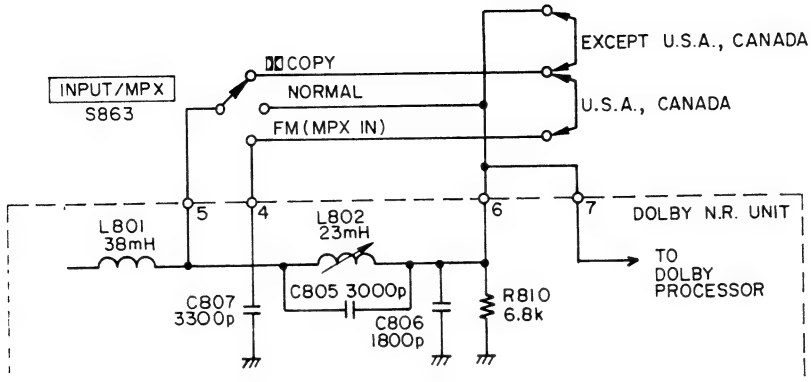

Fig. 7 MPX Circuit

As shown in Fig. 8, when terminals 8 and 9 are shorted together, the processor works as an Encoder. At this time, output 1 will be an unprocessed signal and output 2 will be an encoded signal. The input signal from the Buffer passes through R818 to Ampl 1 as the E_1 signal. After passing through the high pass filter (HPF), Ampl 2 and then R851, it becomes the E_2 signal. This produces two separate signals. The amplitude of E_2 is changed depending on the frequency and amplitude of the input signal. It is always the same phase as E_1. Therefore, the input to amplifier 1 becomes the sum of E_1 and E_2. E_2, when the input signal frequency is high (above approx. 5 kHz) and the signal level is low (below approx. −30 dB), is boosted by a maximum of approx. 10 dB.

The boosted part is decreased by the Decoder and since, at the same time, the hiss, etc., and the high frequency noise added during the recording process is also decreased by 10 dB, effectively, the S/N ratio is improved.

When terminals 9 and 11 are shorted together the processor works as a Decoder.

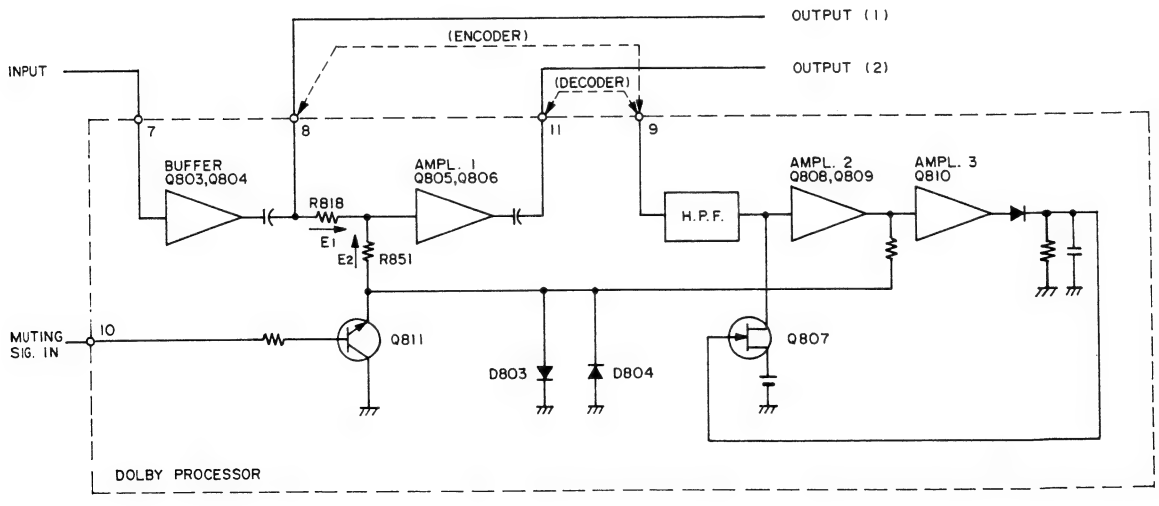

Fig. 8 Dolby Processor Block Diagram

The difference between the Encoder is in the E_2 signal which is taken from the output of Ampl 1. The input and the output of Ampl 1 are of opposite phase and the gain of the amplifier is 1. That is, Ampl 1 input is $E_1 - E_2$ which becomes a decreased signal. The result is that the Decoder characteristics and the Encoder characteristics are symmetrical.

For the actual circuit, VR801 gives the operating point for the electronic attenuator (FET Q807). This determines the standard Dolby level.

VR802 controls the gain of amplifier 2 (Q808, Q809) and determines the amount of compensation. D803 and D804 are a limiter. For example, for the Encoder, when a sufficiently high level signal is provided, the control signal for the electronic attenuator passes through the high pass filter (HPF), Ampl 2 and Ampl 3 and this rectified and smoothed out signal is given to the FET. Only for the short time until the FET operates, the input signal is amplified by Ampl 2 and becomes the E_2 signal and a high level signal appears at the output. If this happens, the signal recorded on the tape will be distorted. The operating point of the next amplifier will change and unnatural sound will be produced. To prevent this, the limiter circuit clips the large signal waveforms.

Fig. 9 shows the record section NR System selection circuit.

When the NR SYSTEM switch is at DBX or OUT position, +7 V is supplied to the electronic switch in the Dolby Encoder/Decoder and the Dolby processor does not operate.

The AL-700 can be supplied an external signal via an external dbx Encoder.

When the NR SYSTEM switch is set to AUTO or OUT position, the following occurs:

With the INPUT/MPX switch set at Dolby Copy position, Dolby Processor terminals 9 and 11 are shorted together and the processor operates as a Decoder. The input signal sent to the processor will be sent as is (unprocessed) to the REC AMPL. The decoded signal will be sent to the Monitor circuit.

When the NR SYSTEM switch is set to NORMAL (or FM/MPX) position, terminals 8 and 9 will be shorted together and processor will work as an Encoder. The input signal to the processor will be sent as is to the Monitor circuit and the Encoded signal will be sent to the REC AMPL.

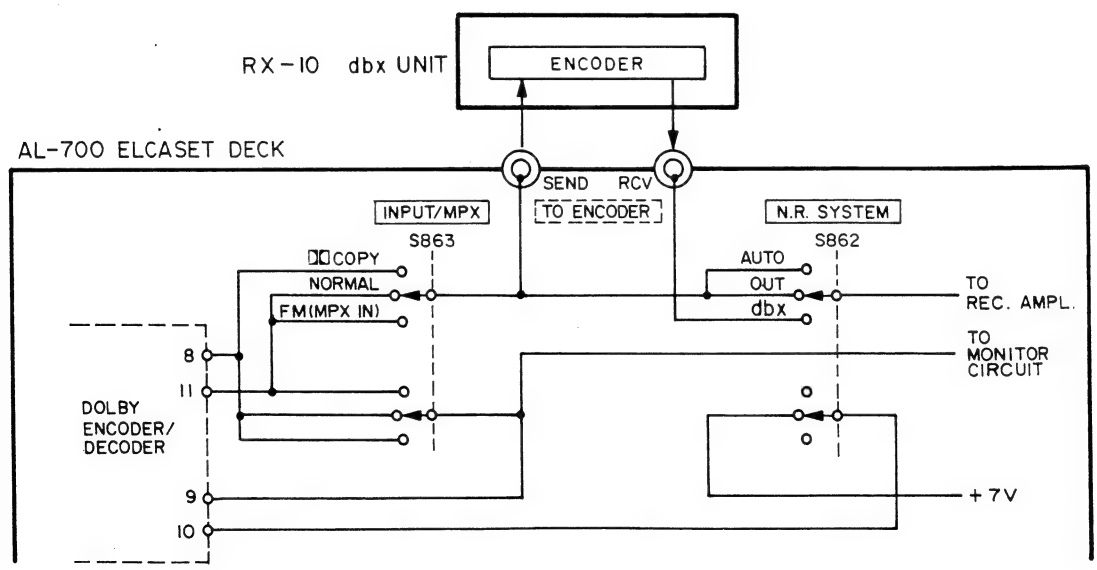

Fig. 9 NR System Selector Circuit

7. REC AMPLIFIER UNIT

Q121 to Q123 perform the record level compensation switching according to the ELCASET Type.
Q126 to Q128, in the same way, perform the record characteristic compensation (EQ) switching.
For control of the switching circuits, see the explanation for the AUTO SELECT circuit given in control section 5.
Q124, Q125 and Q129 are the Muting circuit. Muting is released only in the REC/PLAY mode.

8. BIAS OSCILLATOR

Darlington connected transistors Q761 and Q768 control the oscillation ON and OFF envelope to prevent recording click noise on the tape and magnetization of the heads.
R761 to R763, C761 and D761 determine the oscillator relaxation timing during REC to Stop and REC/PAUSE to Stop operation to keep the recorded click noise at the lowest possible level.
S601 is to prevent the Bias Oscillator from oscillating even if Q761 and Q768 are no good when the Erase Protection tab of the ELCASET is not covering the detection hole.

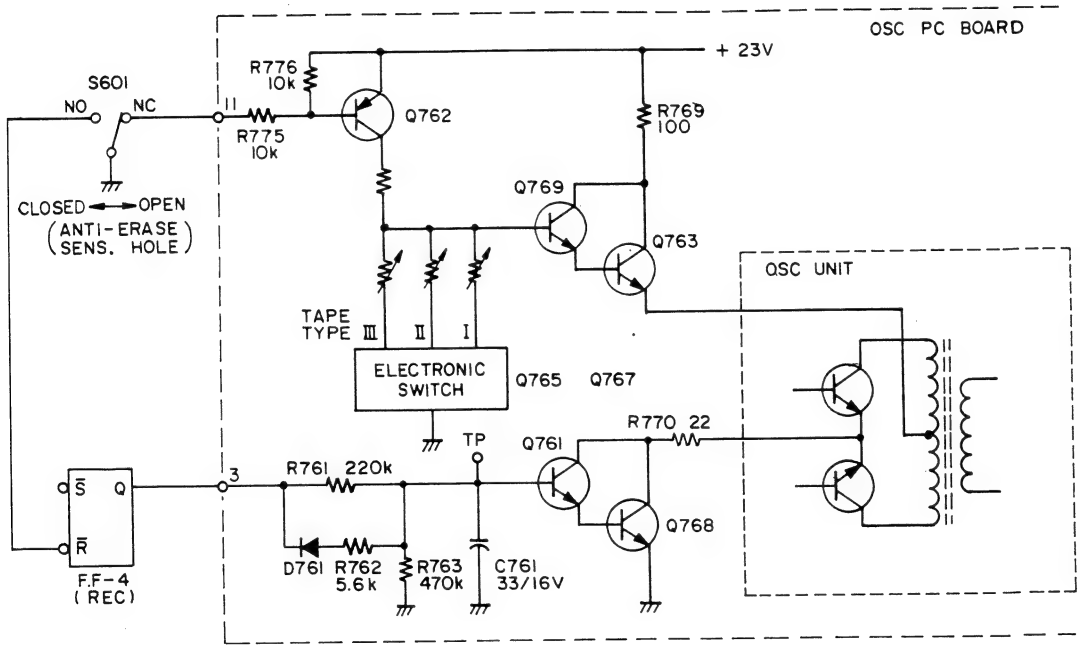

Fig. 10 Bias OSC. Control Circuit

9. SENSING HOLES AND CONTROL SWITCHES

The relationship between each sensing hole in the ELCASET and the Control switches is given in Fig. 11.

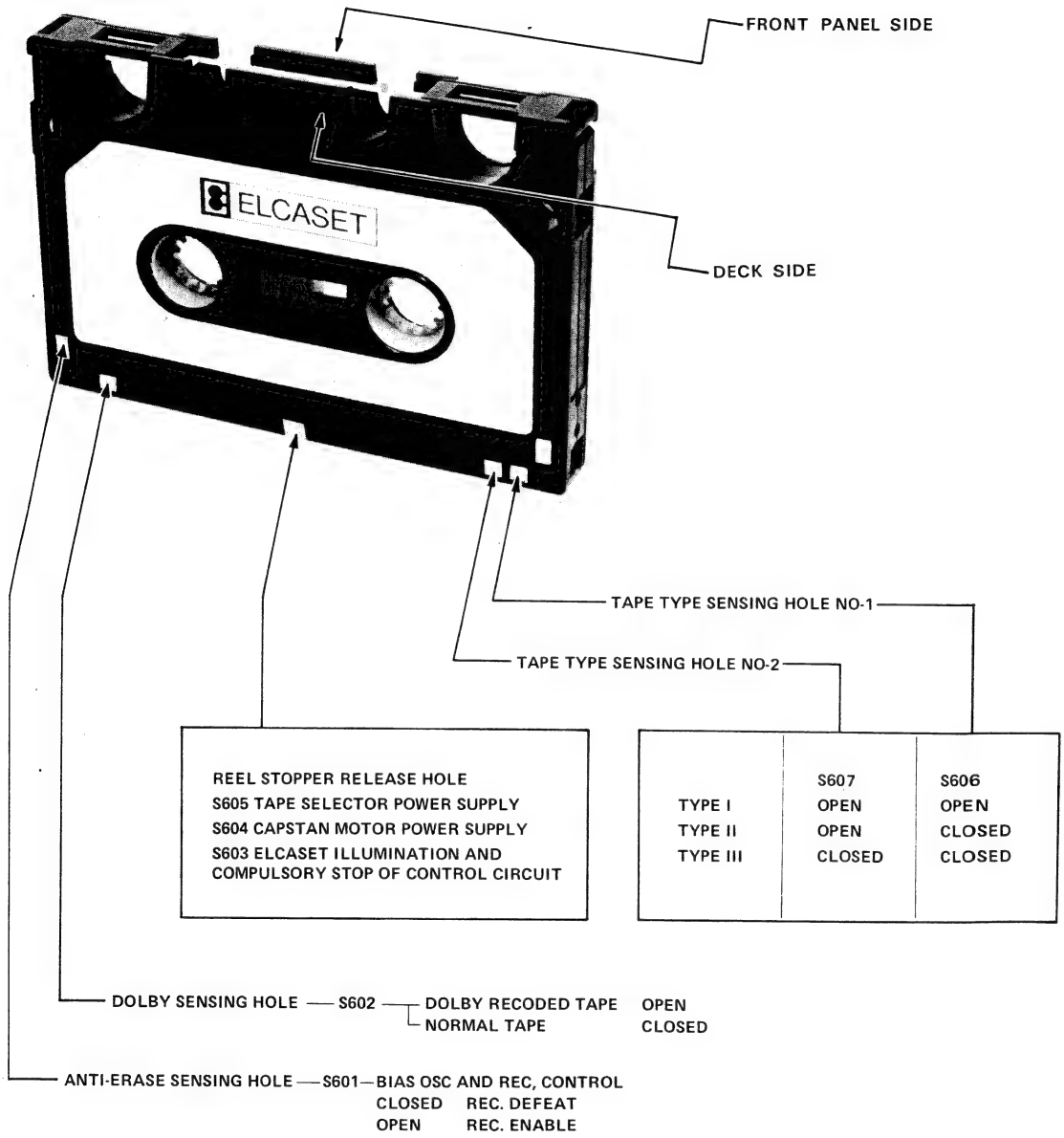

Fig. 11 Sensing Holes and Control Switches

TEAC

PARTS LIST

ELCASET

AL-700

Stereo ELCASET Deck with Dolby System

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PARTS ORDERING INFORMATION

Spare parts are available through your nearest TEAC Authorized Service Center or directly from the TEAC office, the address of which is written on the back cover. When ordering parts, always include the following information:

1. MODEL
2. REF. NO.
3. PARTS NO.
4. DESCRIPTION
5. UNIT SERIAL NO.
6. MANUAL CODE NO.

NOTICE REGARDING PARTS ORDERS

1. Do not order by only REF. NO.
2. In some instances, individual minor parts are not available. In such a case, the entire assembly including the part requested will be sent to you.
3. Parts are identical between the different models with the exceptions as coded by the designations in the REMARKS column.
4. PC Boards shown viewed from foil side.
5. Parts marked with *require longer delivery time than regular parts.

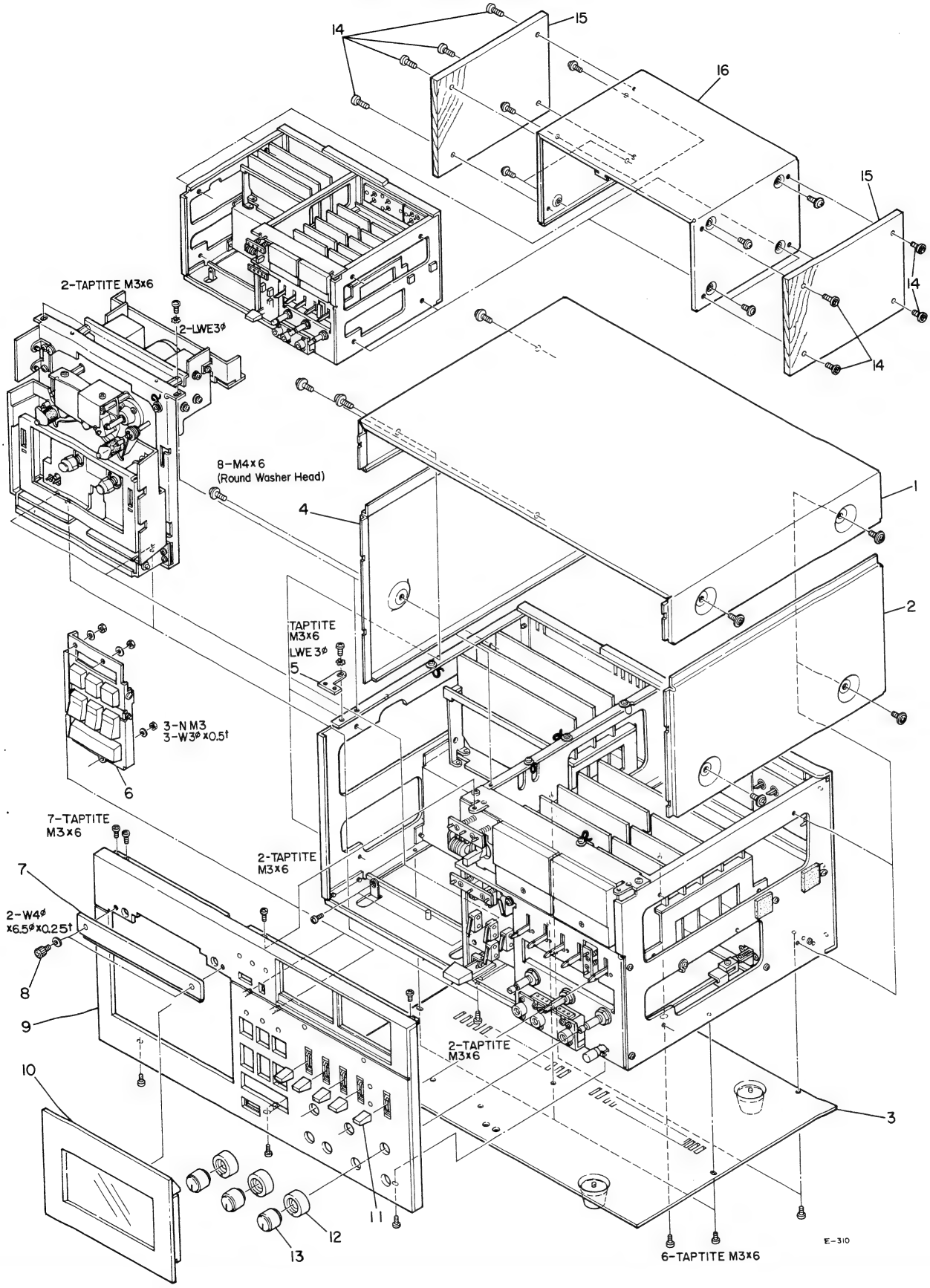
TEAC CORPORATION

Effective: Sept. 1977 LA-054

51032000

1. EXPLODED VIEWS AND PARTS LIST

EXPLODED VIEW-1

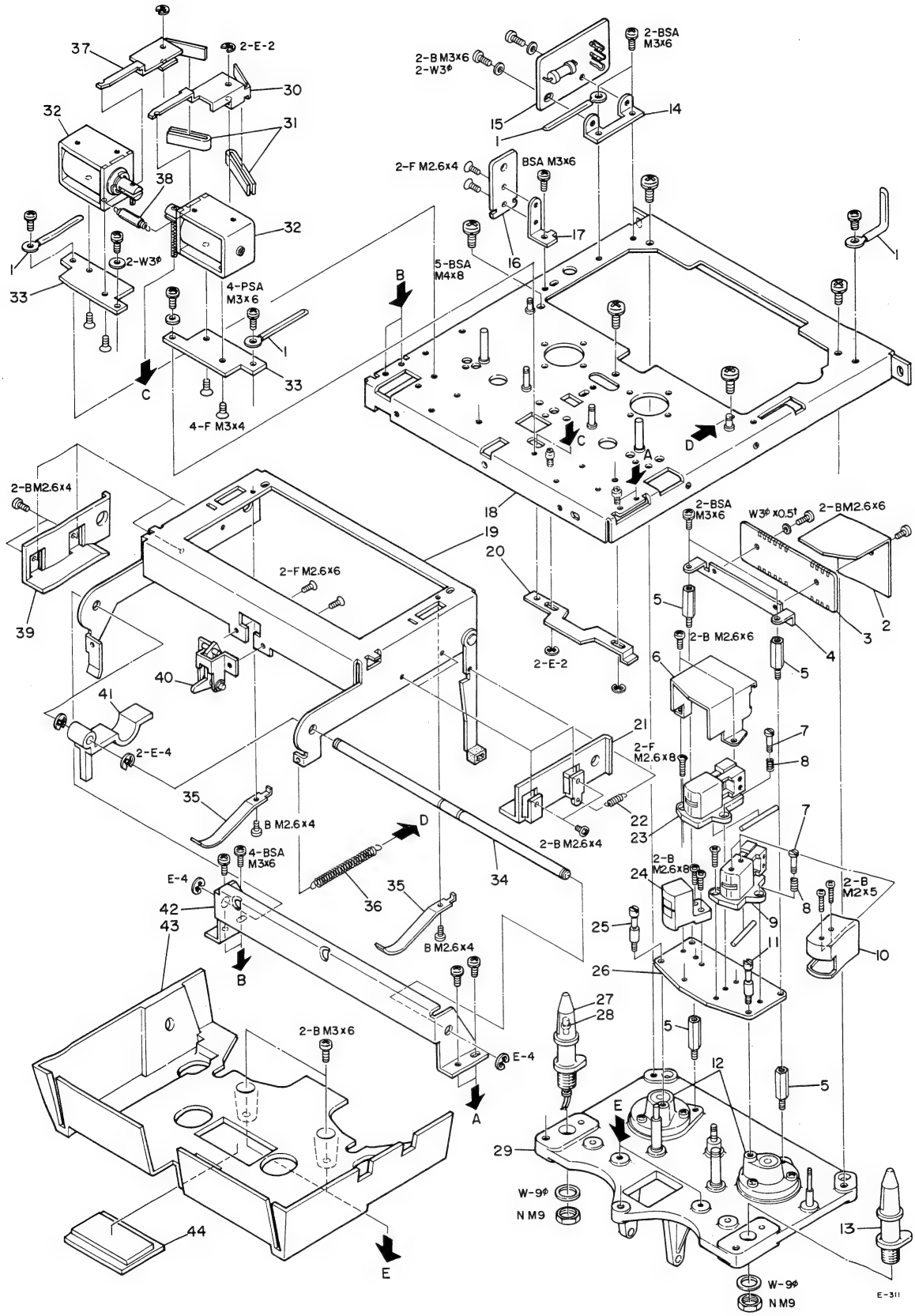


REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
1 - 1	*55521491	Cover, Top	
1 - 2	*55531291	Cover, Side; R	
1 - 3	*55021371	Cover Assy, Bottom	
1 - 4	*55531281	Cover, Side; L	
1 - 5	*55549110	Plate, Panel	
1 - 6	55021431	Button Assy	
	55330810	Button, PLAY	Part of 1 - 6
	55330820	Button, FF	Part of 1 - 6
	55330830	Button, REW	Part of 1 - 6
	55330840	Button, REC	Part of 1 - 6
	55330860	Button, REC MUTE	Part of 1 - 6
	55330850	Button, PAUSE	Part of 1 - 6
	55330870	Button, STOP	Part of 1 - 6
1 - 7	55031033	Panel Assy, Head	All except U.S.A., CANADA
	55031310	Panel Assy, Head	U.S.A., CANADA
1 - 8	*55810480	Trim Screw, Panel	
1 - 9	55010193	Panel Assy, Front	JAPAN
	55021800	Panel Assy, Front	U.S.A., CANADA
	55010211	Panel Assy, Front	GENERAL EXPORT, U.K. EUROPE, AUSTRALIA
	55343580	Escutcheon, A	Part of 1 - 9
	55330901	Escutcheon, B	Part of 1 - 9
	55320281	Escutcheon, Meter	Part of 1 - 9
	50908730	Escutcheon, Power Switch	Part of 1 - 9
1 - 10	55031010	Panel, Cassette Holder	
1 - 11	55300800	Knob, Lever Switch	
1 - 12	55445350	Knob, B	
1 - 13	55445340	Knob, A	
1 - 14	55044980	Screw Assy	All except JAPAN
1 - 15	55331070	Side Board	All except JAPAN
1 - 16	55521930	Cover	All except JAPAN

INCLUDED ACCESSORIES

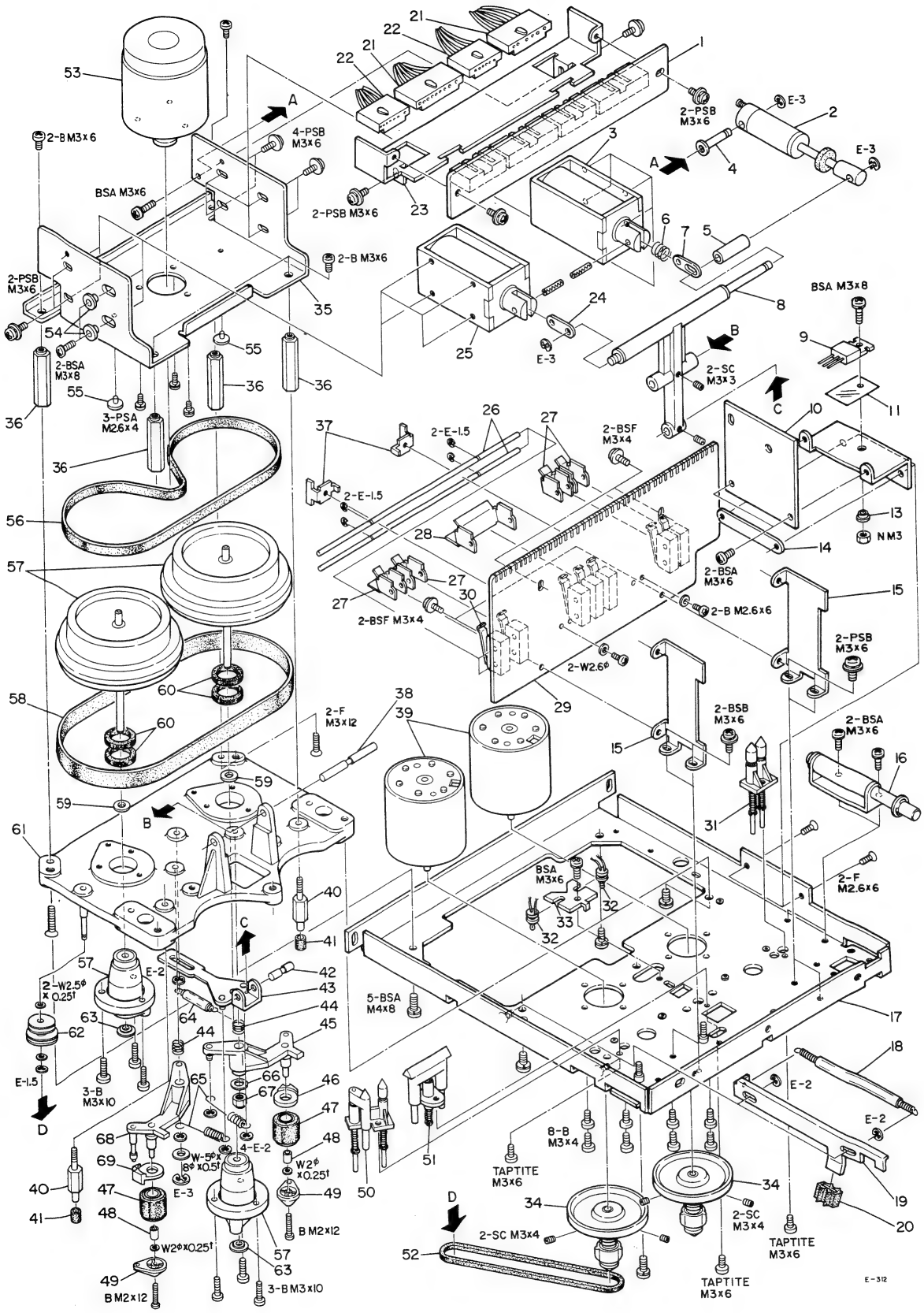
REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
	51280010	Cords, Input-output Connection, 2 used	
	*57100300	Cleaning Stick (TZ-275)	
	*50291350	Silicone Cloth	
	51014420	AL-700 Owner's Manual	JAPAN
	51014550	AL-700 Owner's Manual	U.S.A., CANADA
	51014650	AL-700 Owner's Manual	GENERAL EXPORT, U.K. EUROPE, AUSTRALIA

EXPLODED VIEW-2



REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
2- 1	*55810380	Retainer, Cord; A	
2- 2	*55549290	Paper, Shield	
2- 3	*51684330	PC Board Assy, JOINT PCB-103	
2- 4	*55548740	Bracket, JOINT PC Board	
2- 5	*55445060	Stud, Head Base Plate	
2- 6	*55548730	Plate, Head Shield	
2- 7	55445111	Shaft, Head Adjust	
2- 8	55240730	Spring, Head Adjust	
2- 9	55697010	Head, Playback	
2-10	*55531200	Shield, Head	
2-11	*55445070	Guide, Tape	
2-12	*55043841	Housing Assy	Part of 3 - 57
2-13	55043850	Guide Assy, Cassette; R	
2-14	*55549240	Bracket, PC Board	
2-15	*51684470	PC Board Assy, END SENSOR	
2-16	*51684320	PC Board Assy, PHOTO TRANSISTOR	
	51450550	Photo Transistor, PH-101 (L)	Part of 2 - 16
2-17	*55548820	Bracket, PHOTO TRANSISTOR PC Board	
2-18	*55021361	Chassis Assy, Mechanism	
2-19	*55030981	Holder Assy, Cassette	
2-20	*55549220	Slide Plate, Eject Lock	
2-21	*55343430	Guide, Cassette; R	
2-22	*55240800	Spring, Lock Plate	
2-23	55697000	Head, Record	
2-24	55695550	Head, Erase	
2-25	*55445470	Guide, Tape; R	
2-26	*55531190	Plate, Head Base	
2-27	55043860	Guide Assy, Cassette; L	
2-28	51420890	Lamp	Part of 2 - 27
2-29	*55043871	Base Assy	
2-30	*55548860	Arm, Brake; R	
2-31	55548890	Shoe, Brake	
2-32	51630240	Solenoid, Brake	
2-33	*55548750	Bracket, Brake Solenoid; L	
2-34	*55445180	Shaft, Cassette Holder	
2-35	*55548880	Plate Spring	
2-36	*55240810	Spring, Hold Up	
2-37	*55548850	Arm, Brake; L	
2-38	*55240780	Spring, Brake	
2-39	*55343420	Guide, Cassette; L	
2-40	*55043933	Link Assy, Reel Lock	
2-41	*55343510	Lever, Reel Lock	
2-42	*55531240	Bracket, Cassette Holder	
2-43	*55031020	Mask, Base Assy	
2-44	*55343530	Cover, Lamp	Part of 2 - 43

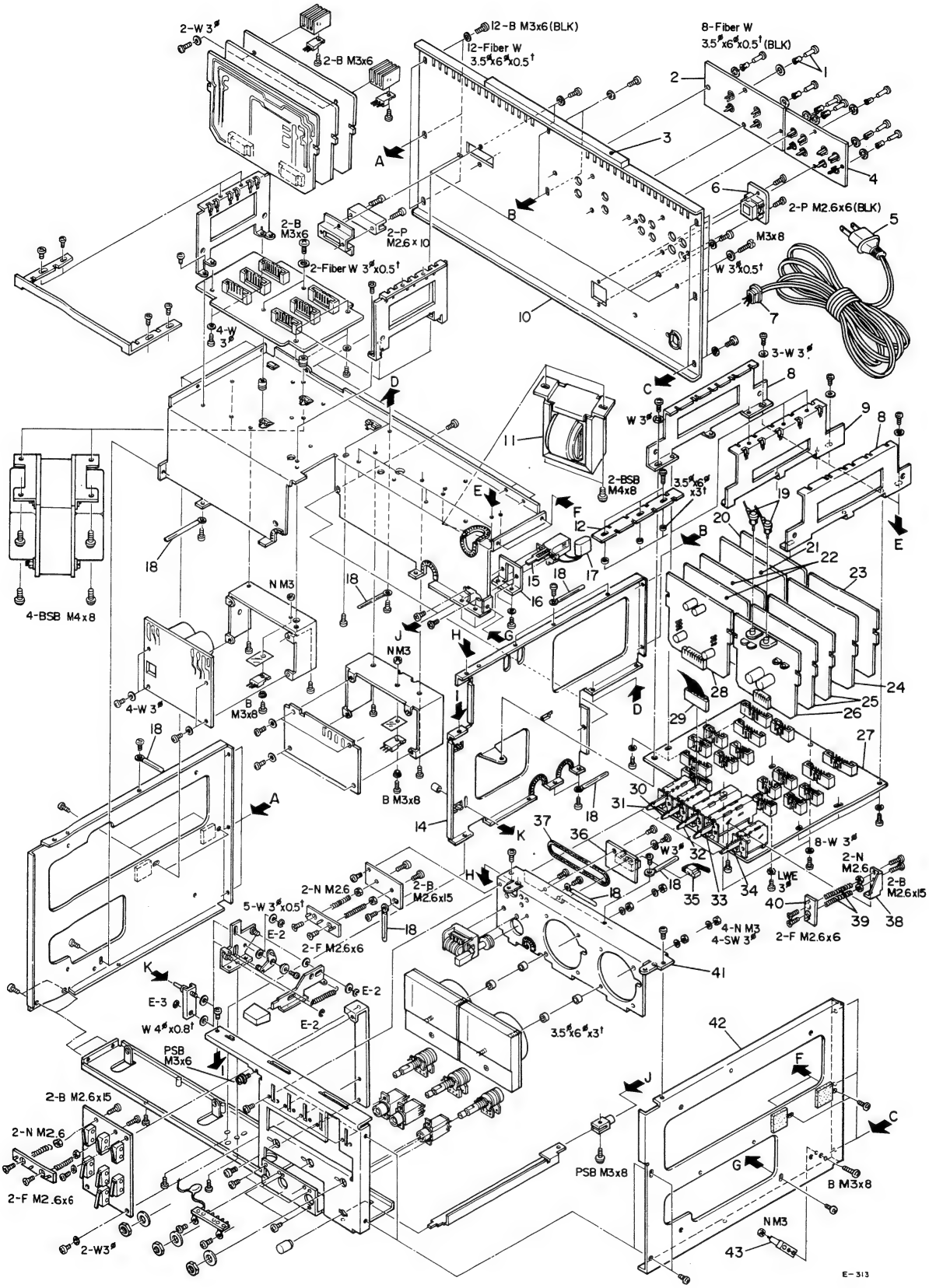
EXPLODED VIEW-3



REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
3 - 1	*51684310	PC Board Assy, JOINT PCB-104	
	51220100	Connector, Plug; 6P x 2	Part of 3 - 1
	51220120	Connector, Plug; 10P x 2	Part of 3 - 1
3 - 2	55043762	Air Damper Assy	
3 - 3	51630230	Solenoid, Pause	
3 - 4	*55445080	Shaft, Damper	
3 - 5	*55445090	Spacer	
3 - 6	*55240710	Spring, Solenoid	
3 - 7	*55548720	Link, B	
3 - 8	*55043811	Lever, Pinch Solenoid	
3 - 9	*50423800	Transistor, 2SD235	
3 - 10	*51684410	PC Board Assy, CAPSTAN SERVO MOTOR	
3 - 11	*50332910	Plate, Insulating	
3 - 12	*55549100	Heat Sink	
3 - 13	*50332950	Washer, Insulating	
3 - 14	*55549150	Nut, Plate	
3 - 15	*55548810	Bracket, Micro Switch PC Board	
3 - 16	55043941	Damper Assy	
3 - 17	*55021361	Chassis Assy, Mechanism	
3 - 18	*55240790	Spring, Slide Plate	
3 - 19	*55548780	Slide Plate, Eject	
3 - 20	55342590	Cushion	
3 - 21	*51220120	Connector, 10P	
3 - 22	*51220100	Connector, 6P	
3 - 23	*55531260	Bracket, Joint PC Board	
3 - 24	*55548710	Link, A	
3 - 25	51630220	Solenoid, Pinch	
3 - 26	*55445440	Shaft, Micro Switch	
3 - 27	*55549261	Holder, Micro Switch; A	
3 - 28	*55549270	Holder, Micro Switch; B	
3 - 29	51684301	PC Board Assy, MICRO SW PCB-104	
3 - 30	50446540	Switch, Micro; SS5GL-13	Part of 3 - 29
3 - 31	*55043901	Actuator Guide Assy, A	
3 - 32	50414660	Lamp, Miniature; 6V, 65 mA	
3 - 33	*55548830	Holder, Lamp	
3 - 34	55043771	Reel Table Assy	
3 - 35	*55531220	Bracket, Capstan Motor	
3 - 36	*55445030	Stud, Motor Bracket	
3 - 37	*55549250	Support, Micro Switch	
3 - 38	*55445020	Shaft, Lever; B	
3 - 39	71051010	DC Reel Motor	
3 - 40	*55445050	Pin, Stop	
3 - 41	*55343150	Cushion	
3 - 42	*55445010	Shaft, Lever; A	
3 - 43	*55043780	Slide Plate Assy	
3 - 44	*55240690	Spring, Roller Arm	
3 - 45	*55043801	Arm Assy, Roller; L	
3 - 46	*55343310	Stopper, L	
3 - 47	55043820	Pinch Roller Assy	
3 - 48	*55445040	Spacer, Roller	
3 - 49	55343320	Cap, Pinch Roller	
3 - 50	*55043911	Actuator Guide Assy, B	
3 - 51	*55043922	Actuator Guide Assy, C	
3 - 52	55343180	Belt, Counter; A	
3 - 53	71051210	Capstan Servo Motor Assy	
3 - 54	*55445100	Collar, Solenoid	
3 - 55	*55343330	Bearing, Thrust	
3 - 56	*55343160	Belt, Capstan; A	
3 - 57	55044011	Capstan Assy	
3 - 58	*55343170	Belt, Capstan; B	
3 - 59	*55548690	Washer, Capstan	
3 - 60	*55343410	Magnet, Thrust	
3 - 61	*55043871	Base Assy	

(Continued on page 31)

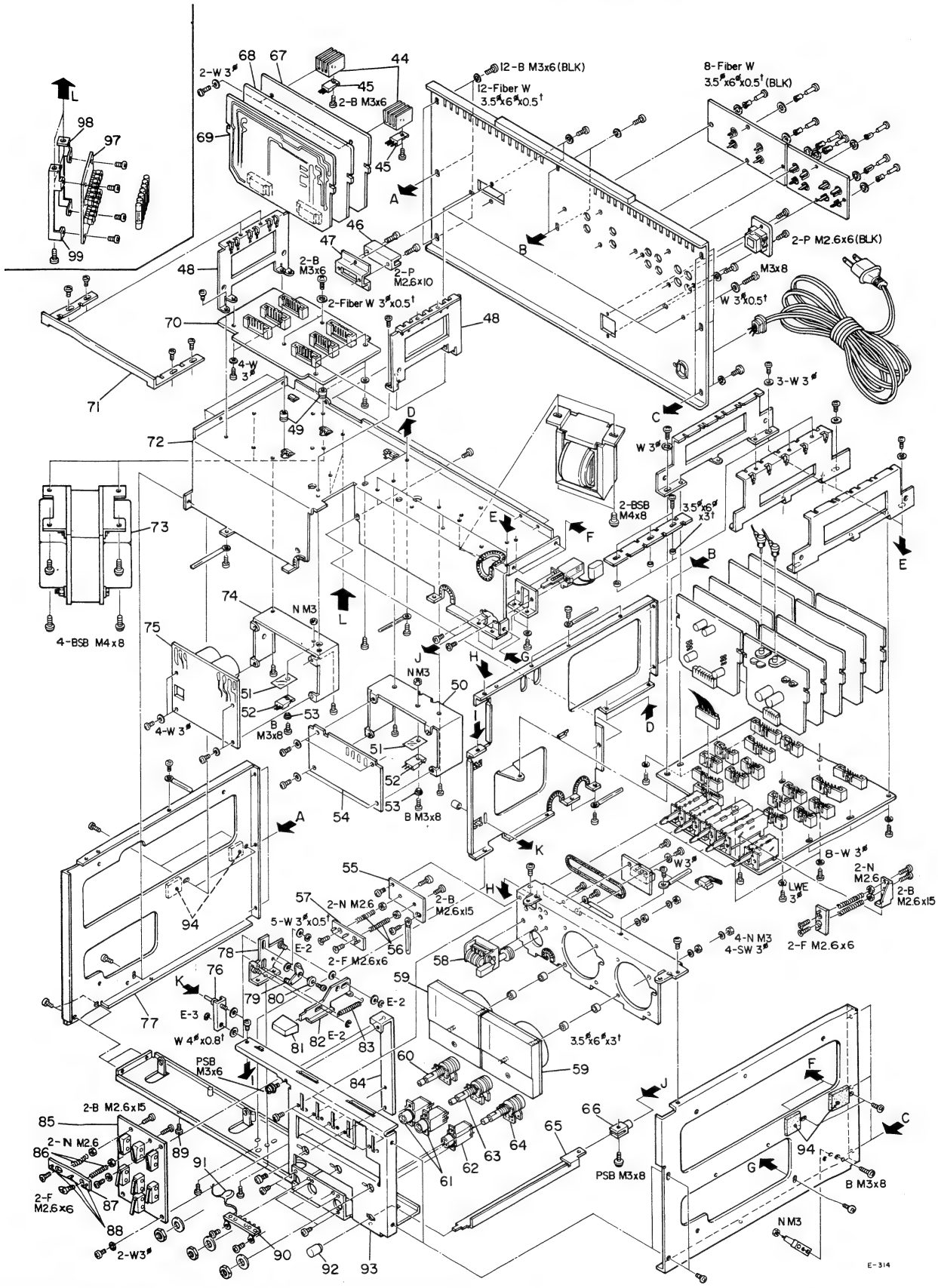
EXPLODED VIEW-4 (REF. NO. 4-1 ~ 4-43)



NOTE: Unless otherwise noted, all screws without hardware coding in Exploded Views are Taptite screws of M3x6 dimensions.

REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
4 - 1	55341180	Push Rivet	
4 - 2	51260270	Terminal Assy	
4 - 3	*55343591	Felt	
4 - 4	51260280	Terminal Assy, 8P	
4 - 5	*51280270	Cord, AC Power	JAPAN, GENERAL EXPORT
	50471661	Cord, AC Power	U.S.A., CANADA
	51280170	Cord, AC Power	EUROPE
	51280310	Cord, AC Power	AUSTRALIA
	51280360	Cord, AC Power	U.K.
4 - 6	51220861	Connector, Socket; 6P	
4 - 7	55300470	Strain Relief, AC Power Cord	JAPAN, U.S.A., CANADA GENERAL EXPORT
	55342690	Strain Relief, AC Power Cord; B	AUSTRALIA
4 - 8	*55531310	Guide Plate, PC Board; A	
4 - 9	*55531272	Guide Plate, PC Board; B	
4 - 10	*55021392	Chassis, Rear	JAPAN, U.S.A., CANADA, AUSTRALIA
	55021420	Chassis, Rear	GENERAL EXPORT
	55021410	Chassis, Rear	EUROPE, U.K.
4 - 11	51520960	Transformer, Power; B	JAPAN
	51521110	Transformer, Power; B	U.S.A.
	51521120	Transformer, Power; B	CANADA
	51521160	Transformer, Power; B	GENERAL EXPORT
	51521140	Transformer, Power; B	EUROPE, U.K., AUSTRALIA
4 - 12	*55548950	Retainer, PC Board; A	
4 - 13		(Not used)	
4 - 14	*55521521	Chassis, M	
4 - 15	*51340090	Switch, Power	JAPAN, U.S.A., CANADA GENERAL EXPORT
	*51340110	Switch, Power	EUROPE, U.K., AUSTRALIA
4 - 16	*55549040	Bracket, Power Switch	
4 - 17	50529050	Spark Killer, 0.1 mfd + 120 ohm 400V AC	JAPAN
	50529060	Spark Killer, 0.033 mfd + 120 ohm 125V AC	U.S.A.
	50529110	Spark Killer, 0.033 mfd + 120 ohm 125V AC 50/60Hz	CANADA
	50529070	Spark Killer, 0.01 mfd + 300 ohm 400V AC	GENERAL EXPORT
	50529080	Cap., Ceramic 4700 pfd 250V AC (2 used)	EUROPE, U.K., AUSTRALIA
4 - 18	*55810380	Retainer, Cord; A	
4 - 19	*51280660	Cord, Jumper	
4 - 20	51684220	PC Board Assy, OSC PCB-101	
4 - 21	51684210	PC Board Assy, REC AMPL.	
4 - 22	51684240	PC Board Assy, DOLBY ENCODER	
4 - 23	51684190	PC Board Assy, METER AMPL.	
4 - 24	51684181	PC Board Assy, OUTPUT AMPL.	
4 - 25	51684230	PC Board Assy, DOLBY DECODER	
4 - 26	51684170	PC Board Assy, PLAYBACK AMPL.	
4 - 27	*51684250	PC Board Assy, MOTHER PCB-102 (AMPL.)	
4 - 28	51684200	PC Board Assy, MIC AMPL.	
4 - 29	*50438470	Connector, 10P	
4 - 30	51320310	Switch, Lever; 4P3T	Part of 4 - 27
4 - 31	51320320	Switch, Lever; DP3T	Part of 4 - 27
4 - 32	51320330	Switch, Lever; 8P3T	Part of 4 - 27
4 - 33	51320300	Switch, Lever; 6P3T	Part of 4 - 27
4 - 34	51320290	Switch, Lever; 4PDT	Part of 4 - 27
4 - 35	*50438480	Connector, 6P	
4 - 36	*51684390	PC Board Assy, CONNECTOR PCB-102	
	51220100	Connector, Plug; 6P	Part of 4 - 36
4 - 37	55343190	Belt, Counter; B	
4 - 38	*55549011	Bracket, LED PC Board	
4 - 39	*55240431	Spring, LED	
4 - 40	*51684400	PC Board Assy, LED PCB-102	
	51430470	LED (Red) D861, D862	Part of 4 - 40
4 - 41	*55531301	Bracket, Meter	
4 - 42	*55521510	Chassis, R	
4 - 43	*50438350	Terminal Strip, 2P	

EXPLODED VIEW-4 (REF. NO. 4-44 ~ 4-99)



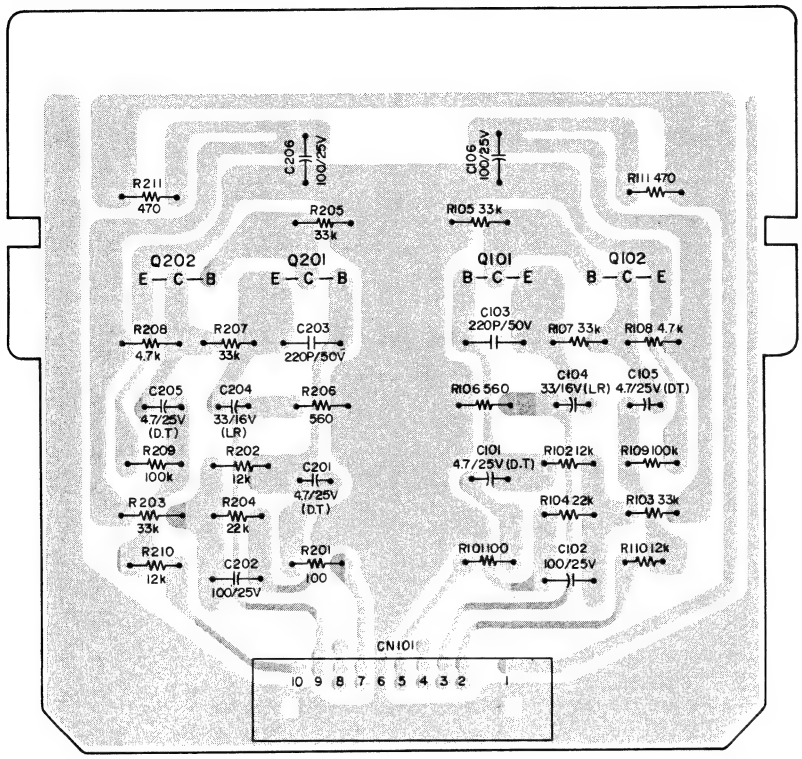
NOTE: Unless otherwise noted, all screws without hardware coding in Exploded Views are Taptite screws of M3x6 dimensions.

REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
4 - 44	*55531320	Heat Sink	
4 - 45	*50424850	Transistor, 2SD234-O	
4 - 46	*50438411	Connector, Socket; 12P	
4 - 47	*55540990	Bracket, Connector	
4 - 48	*55531251	Bracket, PC Board; C	
4 - 49	*55445391	Stud, PC Board	
4 - 50	*55549171	Heat Sink, B	
4 - 51	*50332910	Plate, Insulating	
4 - 52	*50425270	Transistor Q915	
4 - 53	*50332950	Washer, Insulating	
4 - 54	51684271	PC Board Assy, POWER SUPPLY PCB-104	
4 - 55	*51684280	PC Board Assy, JOINT PCB-102	
4 - 56	*55240820	Spring, LED; B	
4 - 57	*51684460	PC Board Assy, LED PCB-103	
	51430470	LED (Red)	Part of 4 - 57
4 - 58	55043891	Counter Assy, Index	
4 - 59	51650400	Meter	
4 - 60	51561890	Var. Res., 50k ohm - A x 2	
4 - 61	51240230	Jack, Single Cond.	
4 - 62	51240220	Jack, 3 Cond.	
4 - 63	51501120	Var. Res., 100k ohm - A x 2	
4 - 64	51501130	Var. Res., 20k ohm - A x 2	
4 - 65	*55548960	Link, Power Switch	
4 - 66	*55343570	Adaptor, Power Switch	
4 - 67	51684380	PC Board Assy, CONTROL PCB-105 (MOTOR DRIVE)	
4 - 68	51684371	PC Board Assy, CONTROL PCB-104 (SOLENOID DRIVE)	
4 - 69	51684360	PC Board Assy, CONTROL PCB-103 (FLIP-FLOP)	
4 - 70	*51684350	PC Board Assy, MOTHER PCB-103 (CONTROL)	
4 - 71	*55548970	Retainer, PC Board; B	
4 - 72	*55512272	Case, Shield	
4 - 73	51520950	Transformer, Power; A	JAPAN
	51521090	Transformer, Power; A	U.S.A.
	51521100	Transformer, Power; A	CANADA
	51521150	Transformer, Power; A	GENERAL EXPORT
	51521130	Transformer, Power; A	EUROPE, U.K., AUSTRALIA
4 - 74	*55549160	Heat Sink, A	
4 - 75	51684260	PC Board Assy, POWER SUPPLY PCB-103	
4 - 76	*55043950	Arm Assy, Eject; B	
4 - 77	*55521500	Chassis, L	
4 - 78	*55043960	Bracket Assy, Eject	
4 - 79	*55043970	Arm Assy, Eject; A	
4 - 80	*55444510	Collar, Arm	
4 - 81	55330880	Button, Eject	
4 - 82	*55549030	Lever, Eject	
4 - 83	*55240830	Spring, Eject	
4 - 84	*55548990	Bracket, Micro Switch PC Board	
4 - 85	*51684340	PC Board Assy, MICRO SW PCB-102	
	50572740	Carbon Res., 470 ohm 1/4W 5% (R590~R592)	Part of 4 - 85
	50446320	Switch, Micro; SS-5GL	Part of 4 - 85
4 - 86	*55240431	Spring, LED	Part of 4 - 85
4 - 87	*51672850	PC Board, LED	Part of 4 - 85
4 - 88	51430470	LED (Red)	Part of 4 - 85
4 - 89	*55341960	Screw, Guide	
4 - 90	*51260250	Terminal Strip, 2L - 4P	
4 - 91	50542300	Ceramic Cap., 0.047 mfd 50V	
4 - 92	55400540	Knob, Power Switch	
4 - 93	*55021381	Chassis, Front	
4 - 94	*55550550	Felt	
4 - 95	55340841	Strain Relief, AC Power Cord	EUROPE, U.K.
4 - 96	55343610	Cover, Capacitor; S	All except JAPAN, CANADA
	55343620	Cover, Capacitor; L	CANADA

(Continued on page 31)

2. PC BOARD SECTION (Diagram)

1. MIC AMPLIFIER



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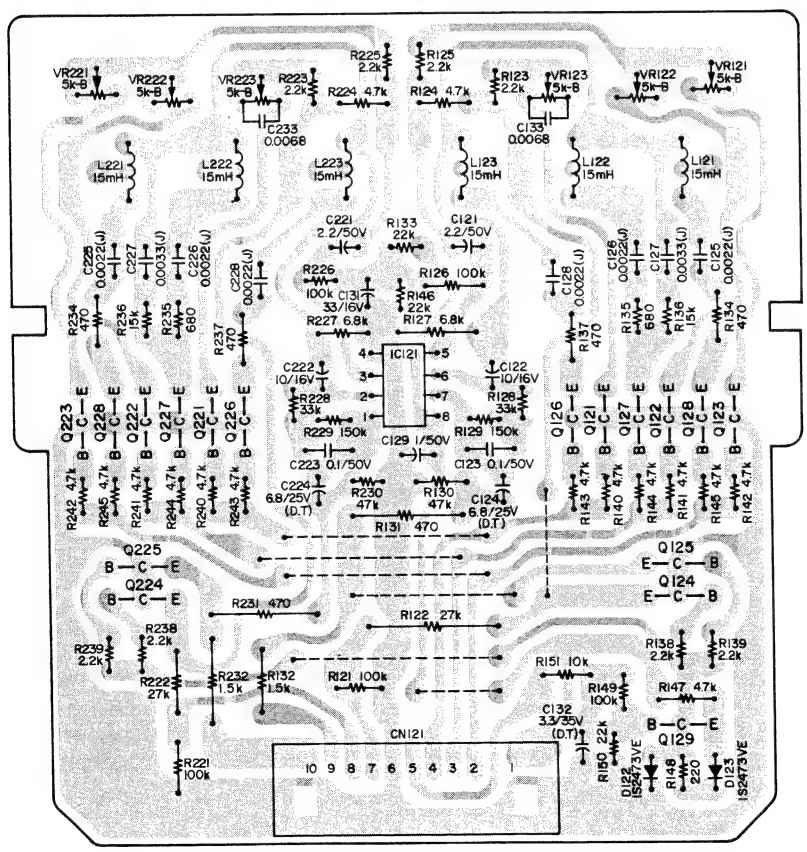
2. REC AMPLIFIER



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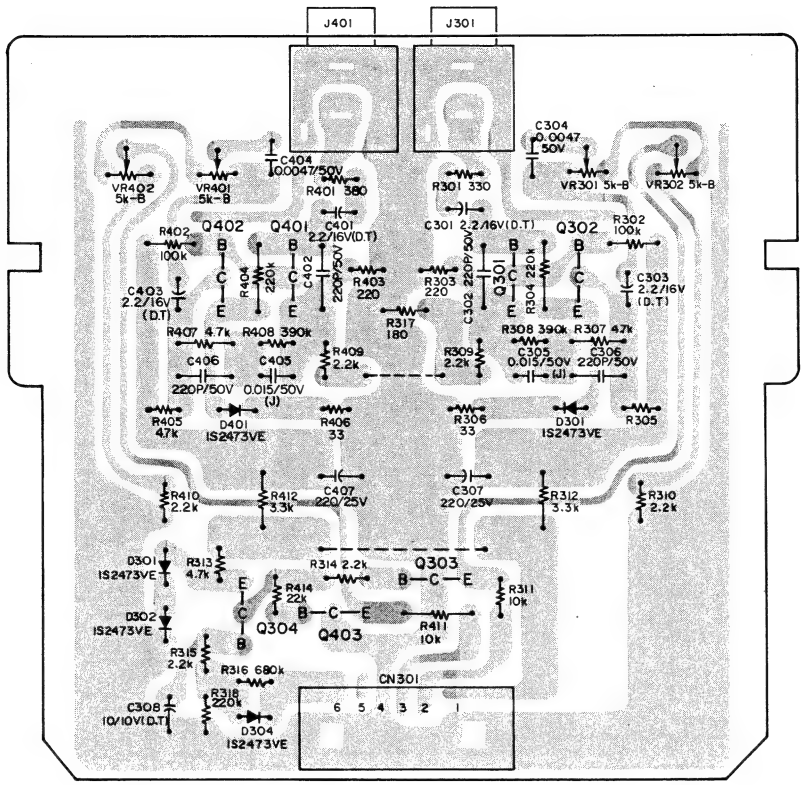
3. PLAYBACK AMPLIFIER



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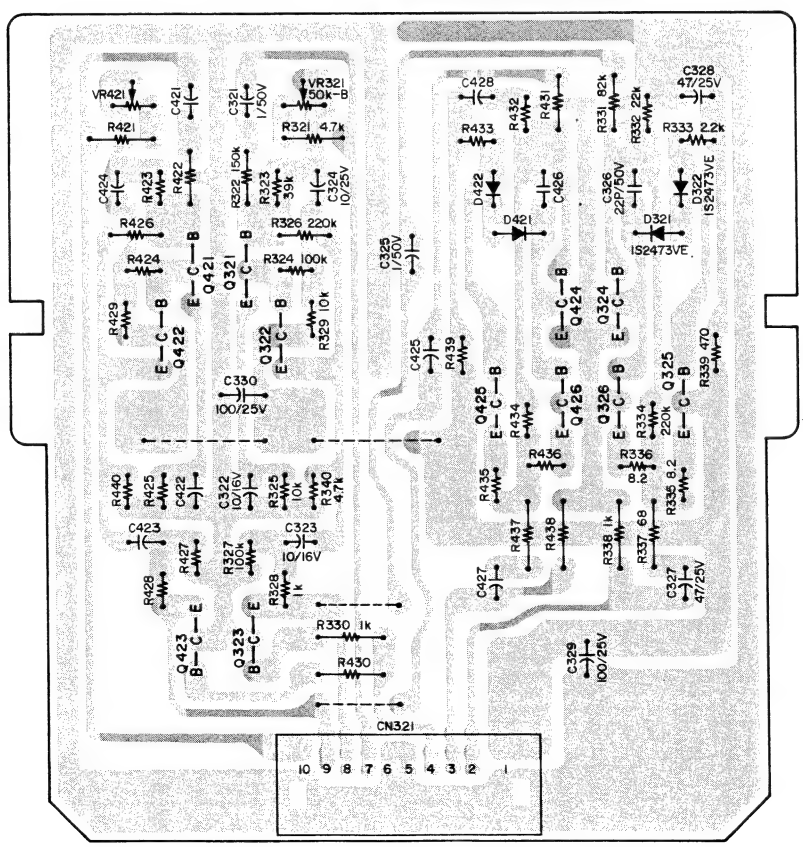
4. OUTPUT AMPLIFIER



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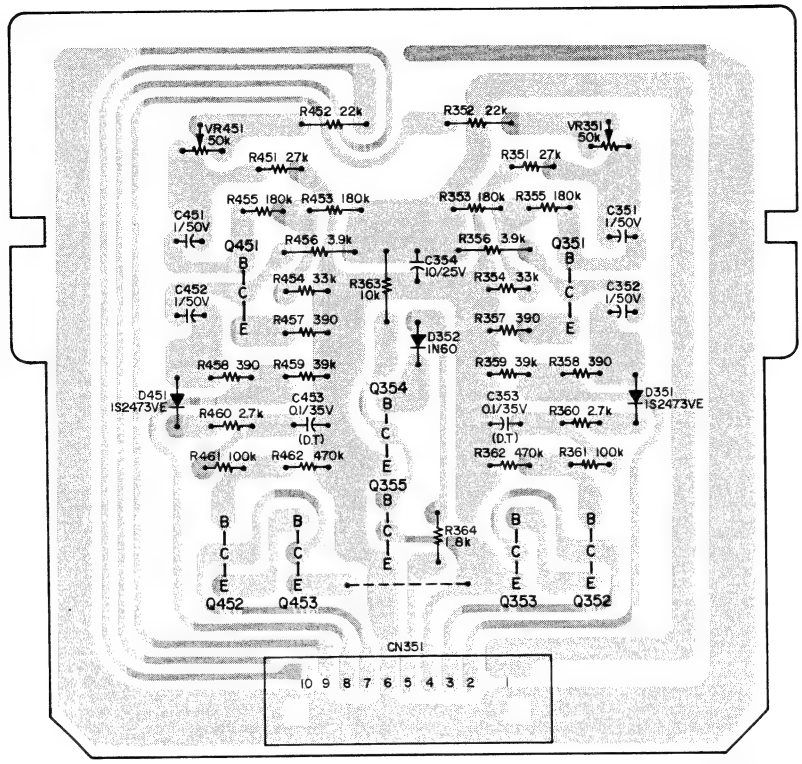
5. METER AMPLIFIER



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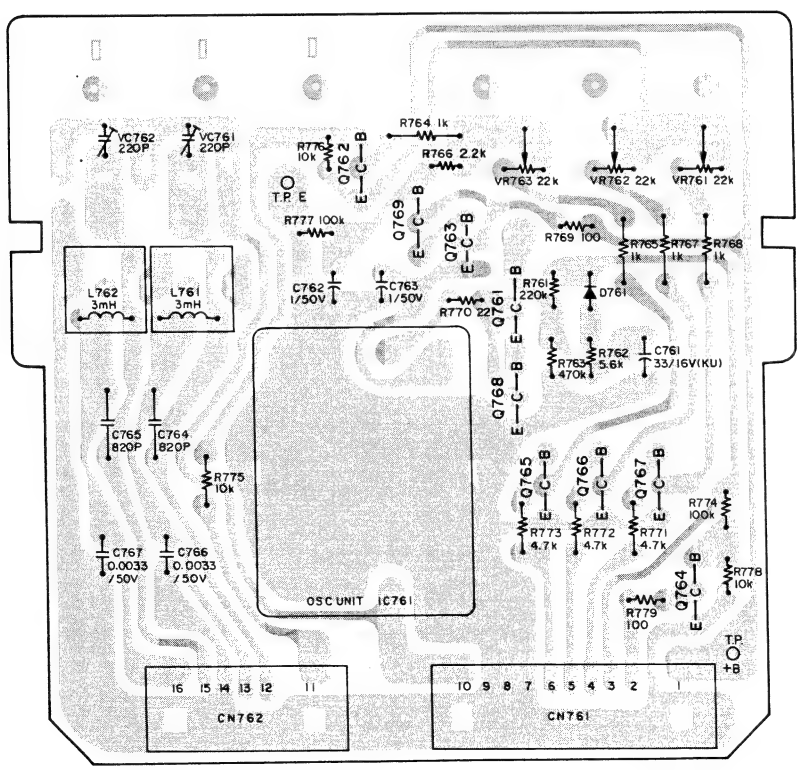
6. OSC PC BOARD-101



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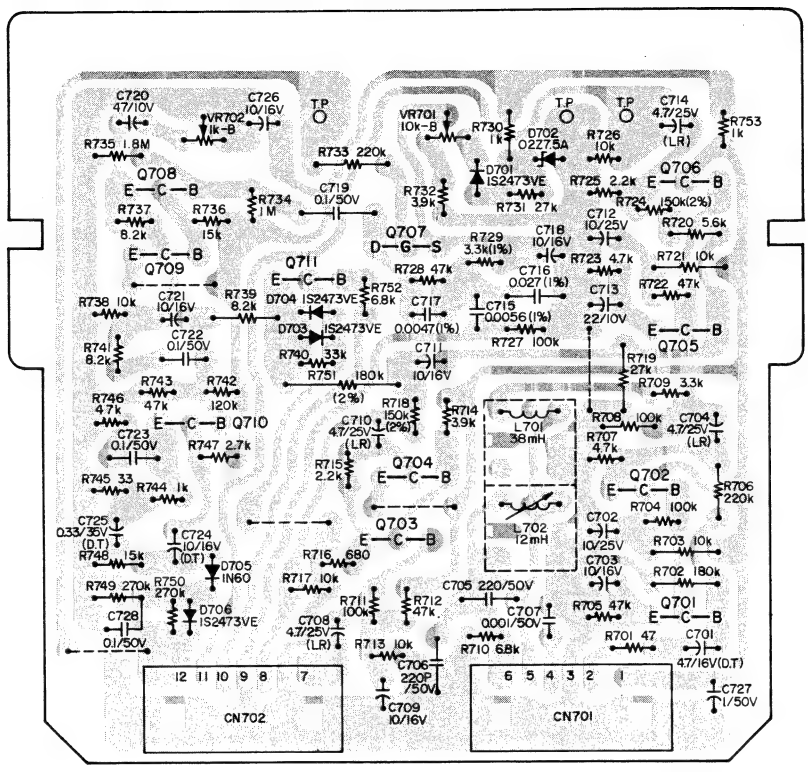
7. DOLBY DECODER



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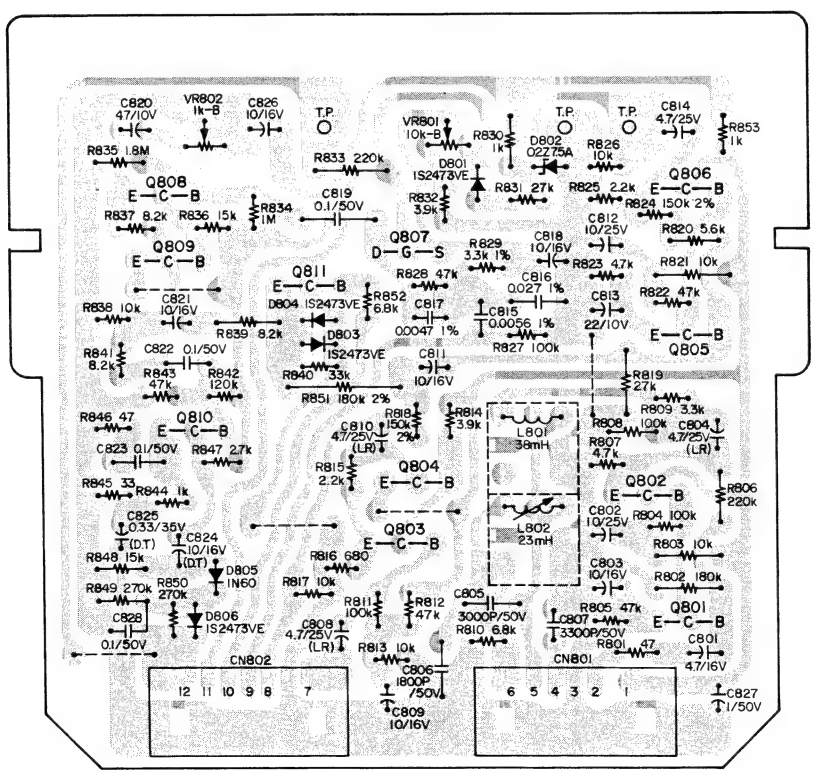
8. DOLBY ENCODER



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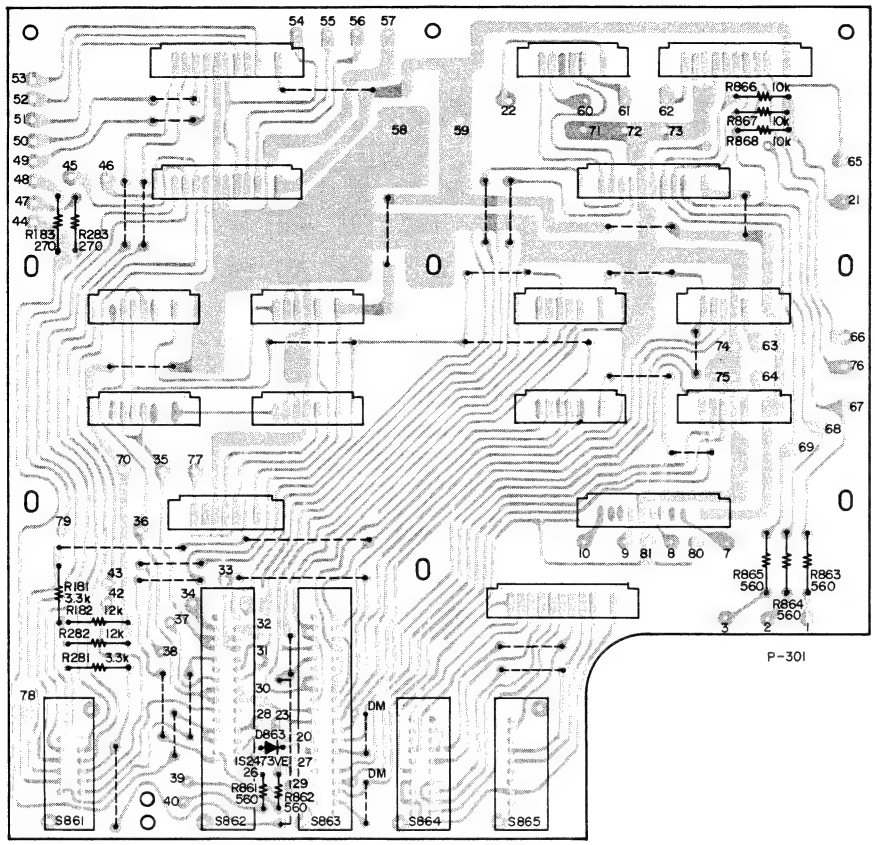
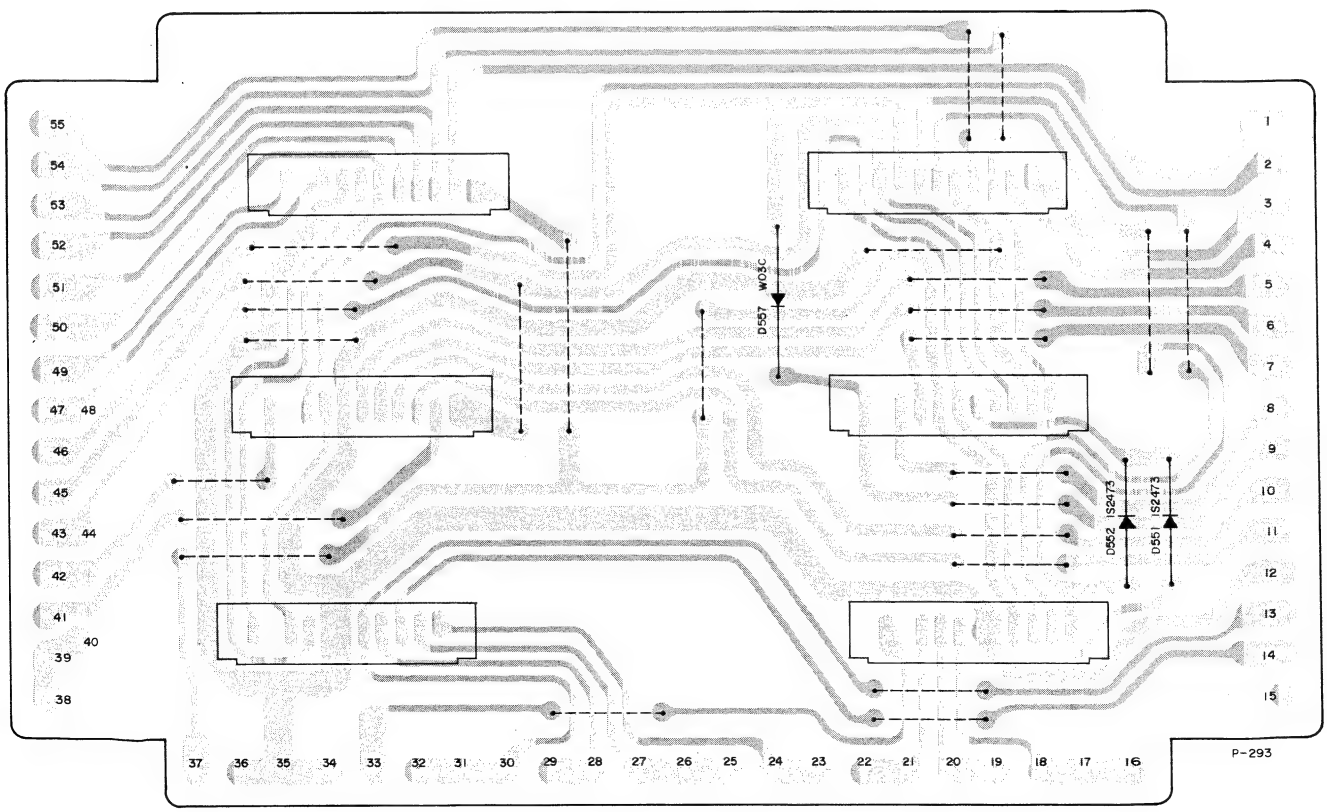
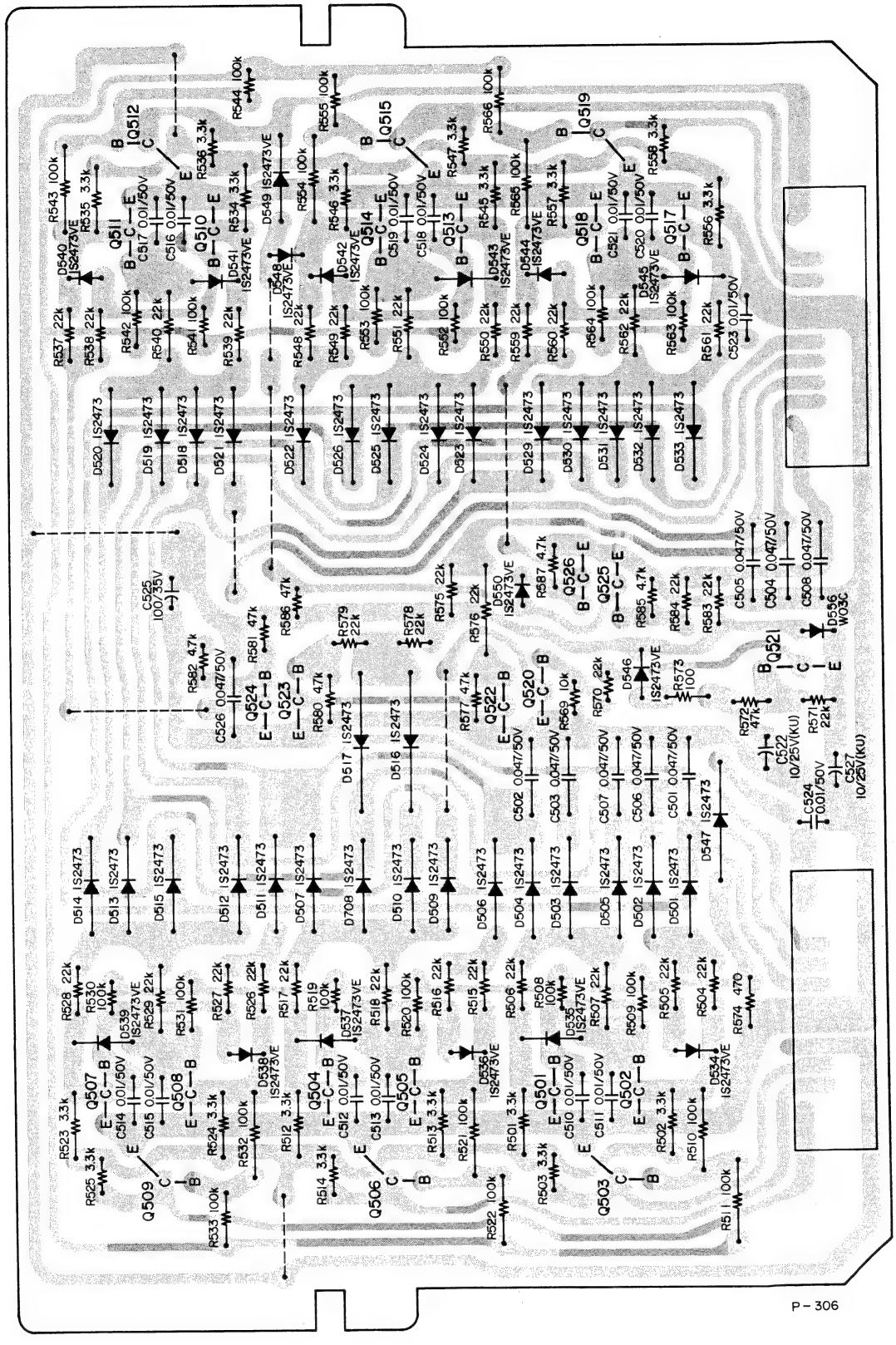
9. MOTHER PC BOARD-102 (AMPL.)



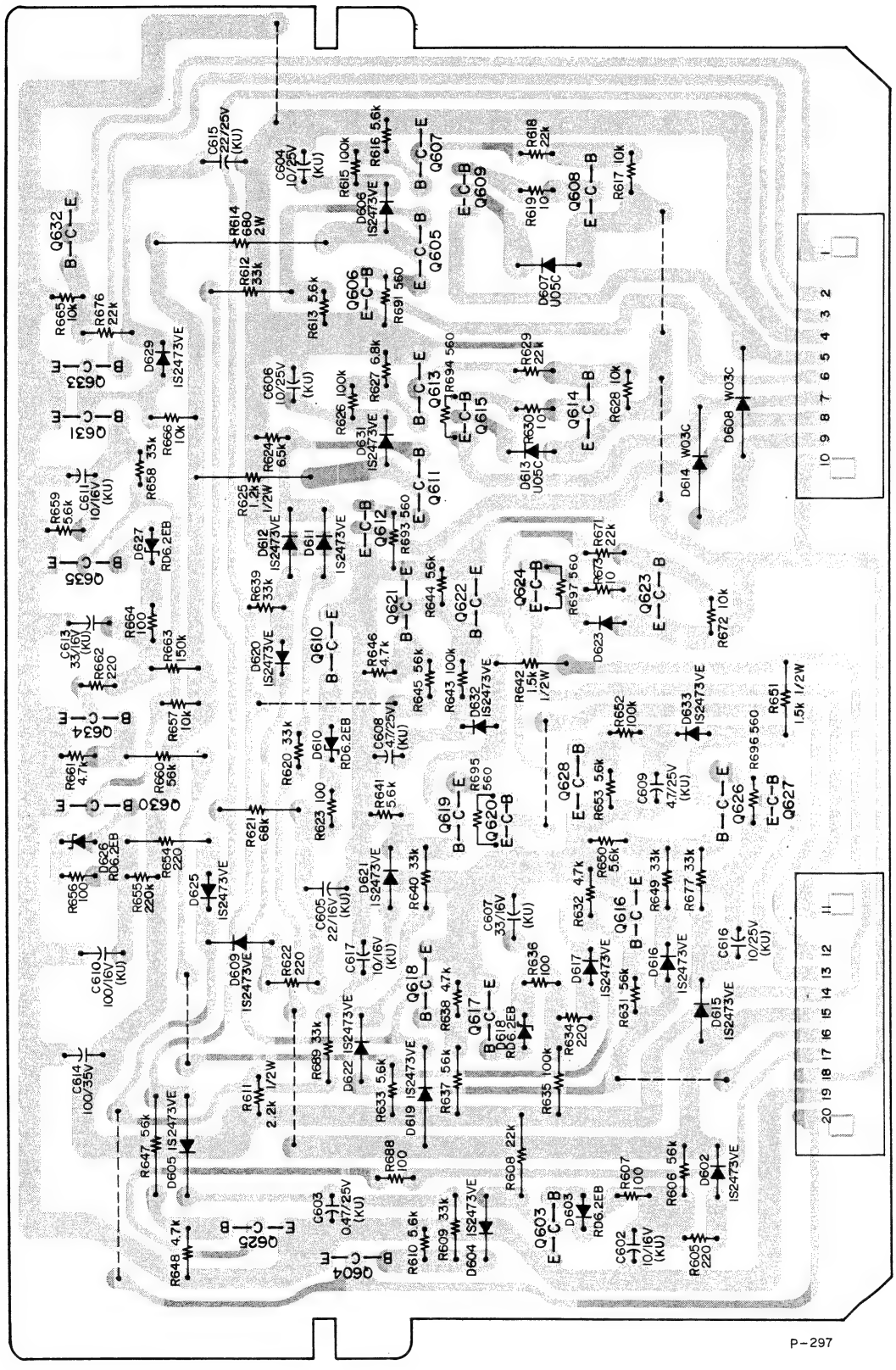
10. MOTHER PC BOARD-103 (CONTROL)



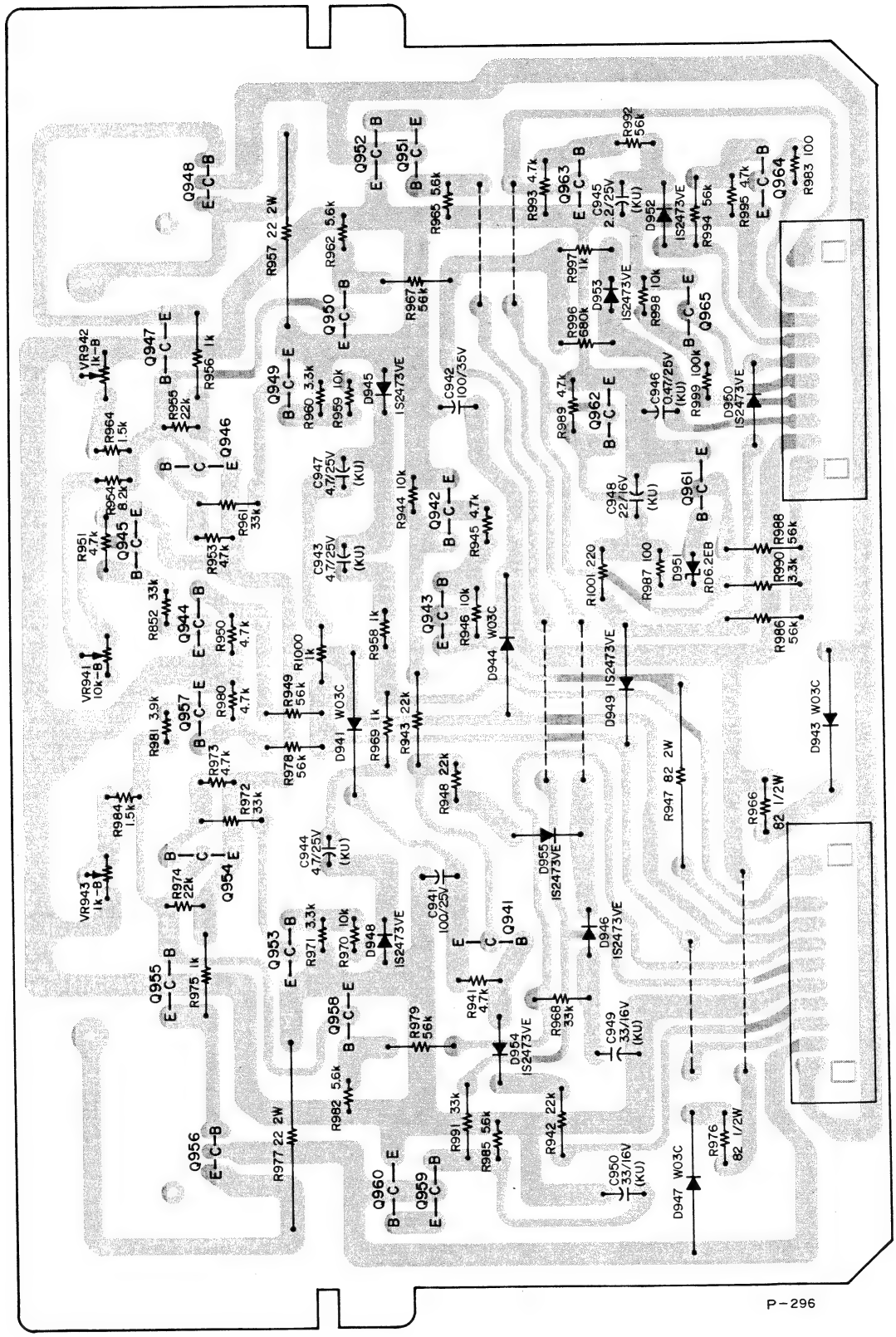
11. CONTROL PC BOARD-103 (FLIP-FLOP)



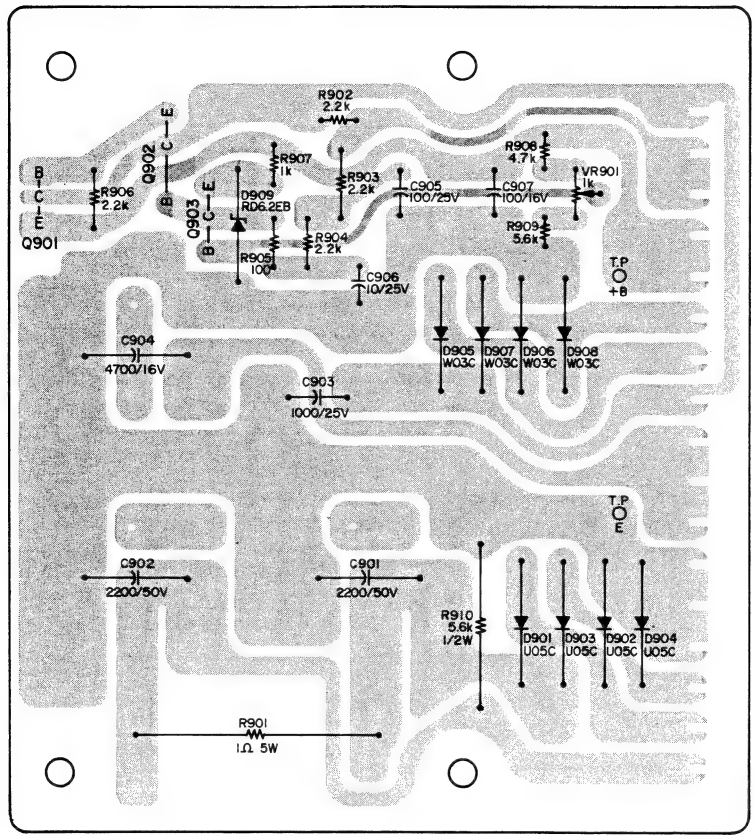
12. CONTROL PC BOARD-104 (SOLENOID DRIVE)



13. CONTROL PC BOARD-105 (MOTOR DRIVE)



14. POWER SUPPLY PC BOARD-103(A)



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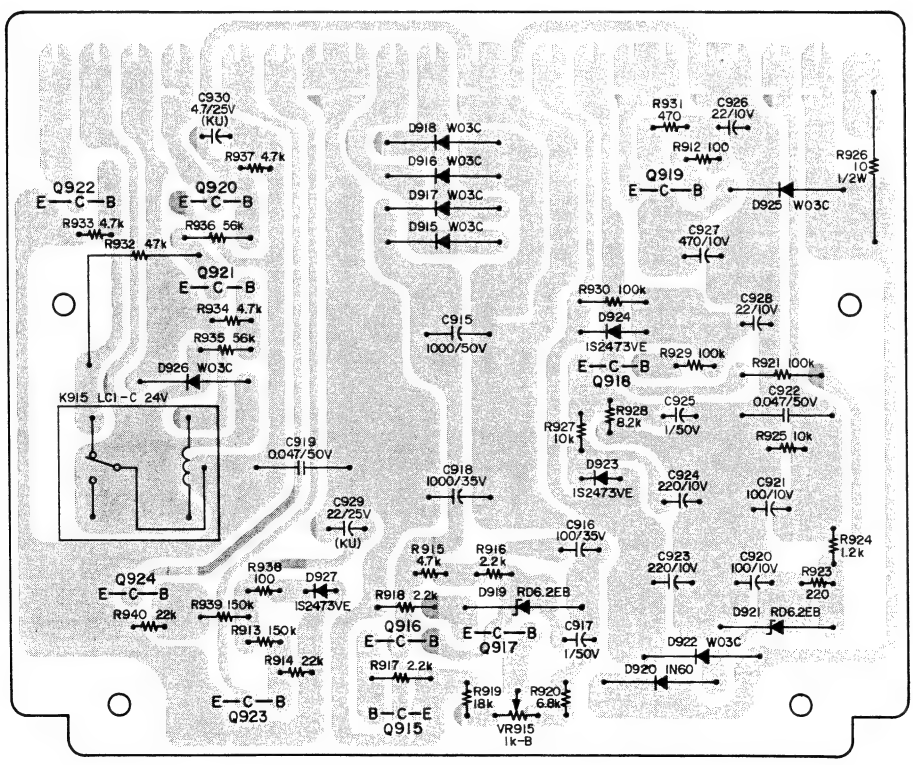
15. POWER SUPPLY PC BOARD-104(B)



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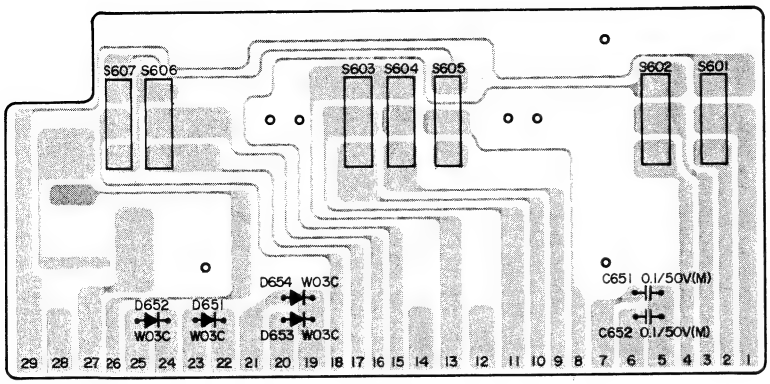
16. MICRO SW PC BOARD-104



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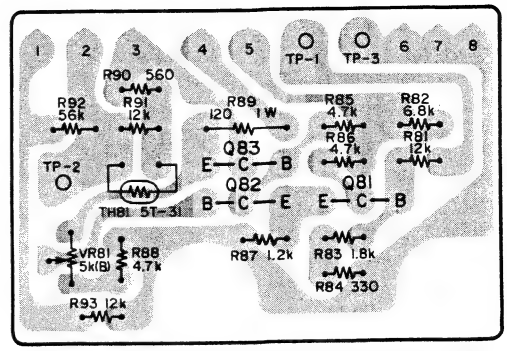
17. END SENSOR PC BOARD-101



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2. PC BOARD SECTION (Parts List)

1. MIC AMPLIFIER

REF. NO.	PARTS NO.	DESCRIPTION
	51684200	PC Board Assy
	51674200	PC Board
	TRANSISTORS	
Q101/Q201	50424650	2SA721T
Q102/Q202	50425520	2SC1222U
	CARBON RESISTORS	
	All resistors are rated ±5% tolerance and 1/4 watt.	
R101/R201	50570580	100 ohm
R102/R202	50571180	33k ohm
R103/R203	50571140	22k ohm
R104/R204	50571080	12k ohm
R105/R205	50571180	33k ohm
R106/R206	50570760	560 ohm
R107/R207	50571180	33k ohm
R108/R208	50570980	4.7k ohm
R109/R209	50571300	100k ohm
R110/R210	50571080	12k ohm
R111/R211	50570740	470 ohm
	CAPACITORS	
C101/C201	50546541	Dip. Tant. 4.7 mfd 16V
C102/C202	50554170	Elec. 100 mfd 25V
C103/C203	50547450	Dip. Mica 220 pfd 50V
C104/C204	51700840	Elec. 33 mfd 25V (LR)
C105/C205	50546611	Dip. Tant. 4.7 mfd 25V
C106/C206	50554170	Elec. 100 mfd 25V
	MISCELLANEOUS	
	51220880	Connector Socket, 10P

2. REC AMPLIFIER

REF. NO.	PARTS NO.	DESCRIPTION
	51684210	PC Board Assy
	51674210	PC Board
	IC	
IC121	51470240	JRC4558D-F
	TRANSISTORS	
Q121/Q221	51450360	2SC945LK or LP
Q122/Q222	51450360	2SC945LK or LP
Q123/Q223	51450360	2SC945LK or LP
Q124/Q224	51450360	2SC945LK or LP
Q125/Q225	51450360	2SC945LK or LP
Q126/Q226	51450360	2SC945LK or LP
Q127/Q227	51450360	2SC945LK or LP
Q128/Q228	51450360	2SC945LK or LP
Q129	50425530	2SA733P
	DIODES	
D122, D123	50425170	1S2473V E
	CARBON RESISTORS	
	All resistors are rated ±5% tolerance and 1/4 watt.	
R121/R221	50571300	100k ohm
R122/R222	50571160	27k ohm
R123/R223	50570900	2.2k ohm
R124/R224	50570980	4.7k ohm
R125/R225	50570900	2.2k ohm
R126/R226	50571300	100k ohm
R127/R227	50571020	6.8k ohm
R128/R228	50571180	33k ohm
R129/R229	50571340	150k ohm

REF. NO.	PARTS NO.	DESCRIPTION
R130/R230	50571220	47k ohm
R131/R231	50570740	470 ohm
R132/R232	50570860	1.5k ohm
R133/R233	50571140	22k ohm
R134/R234	50570740	470 ohm
R135/R235	50570780	680 ohm
R136/R236	50571100	15k ohm
R137/R237	50570740	470 ohm
R138/R238	50570900	2.2k ohm
R139/R239	50570900	2.2k ohm
R140/R240	50570980	4.7k ohm
R141/R241	50570980	4.7k ohm
R142/R242	50570980	4.7k ohm
R143/R243	50570980	4.7k ohm
R144/R244	50570980	4.7k ohm
R145/R245	50570980	4.7k ohm
R146/R246	50571140	22k ohm
R147	50570980	4.7k ohm
R148	50570660	220 ohm
R149	50571300	100k ohm
R150	50571140	22k ohm
R151	50571060	10k ohm
	CAPACITORS	
C121/C221	50554980	Elec. 2.2 mfd 50V
C122/C222	50554050	Elec. 10 mfd 16V
C123/C223	50549285	Mylar 0.1 mfd 50V 5%
C124/C224	50546621	Dip. Tant. 6.8 mfd 25V
C125/C225	50548765	Mylar 0.0022 mfd 50V 5%
C126/C226	50548765	Mylar 0.0022 mfd 50V 5%
C127/C227	50548300	Mylar 0.0033 mfd 50V 10%
C128/C228	50548765	Mylar 0.0022 mfd 50V 5%
C129	50554540	Elec. 1 mfd 50V
C131	50554260	Elec. 33 mfd 16V
C132	50546731	Dip. Tant. 3.3 mfd 35V
C133/C233	50548935	Mylar 0.0068 mfd 50V 5%
	VARIABLE RESISTORS	
VR121/VR221	51501530	Semi-fixed, 5k ohm - B
VR122/VR222	51501530	Semi-fixed, 5k ohm - B
VR123/VR223	51501530	Semi-fixed, 5k ohm - B
	COILS	
L121/L221	50562650	Record EQ, 15 mH
L122/L222	50562650	Record EQ, 15 mH
L123/L223	50562650	Record EQ, 15 mH
	MISCELLANEOUS	
	51220880	Connector Socket, 10P
	51812090	Jumper (7 used)

3. PLAYBACK AMPLIFIER

REF. NO.	PARTS NO.	DESCRIPTION
	51684170	PC Board Assy
	51674170	PC Board
	TRANSISTORS	
Q301/Q401	50425520	2SC1222U or E
Q302/Q402	50425520	2SC1222U or E
Q303/Q403	50425490	2SC1636I
Q304	50425530	2SA733P
	DIODES	
D301/D401	50425170	1S2473VE
D302/D402	50425170	1S2473VE
D303/D403	50425170	1S2473VE
D304	50425170	1S2473VE
	CARBON RESISTORS	
	All resistors are rated ±5% tolerance and 1/4 watt.	
R301/R401	50570700	330 ohm
R302/R402	50571300	100k ohm
R303/R403	50570660	220 ohm
R304/R404	50571380	220k ohm
R305/R405	50570980	4.7k ohm
R306/R406	50570460	33 ohm
R307/R407	50570980	4.7k ohm
R308/R408	50571440	390k ohm
R309/R409	50570900	2.2k ohm
R310/R410	50570900	2.2k ohm
R311/R411	50571060	10k ohm
R312/R412	50570940	3.3k ohm
R313	50570980	4.7k ohm
R314/R414	50570900	2.2k ohm
R315	50570900	2.2k ohm
R316	50571500	680k ohm
R317	50570640	180 ohm
R318	50571380	220k ohm
	CAPACITORS	
C301/C401	50546521	Dip. Tant. 2.2 mfd 16V
C302/C402	50547450	Dip. Mica 220 pfd 50V
C303/C403	50546521	Dip. Tant. 2.2 mfd 16V
C304/C404	50548915	Mylar 0.0047 mfd 50V 5%
C305/C405	50548875	Mylar 0.015 mfd 50V 5%
C306/C406	50547450	Dip. Mica 220 pfd 50V
C307/C407	50554180	Elec. 220 mfd 25V
C308	50546561	Dip. Tant. 10 mfd 16V
	VARIABLE RESISTORS	
VR301/VR401	51501530	Semi-fixed, 5k ohm - B
VR302/VR402	51501530	Semi-fixed, 5k ohm - B
	MISCELLANEOUS	
	51220890	Connector Socket, 6P
J301/J401	51240330	Pin Jack, 1P
	51812090	Jumper (2 used)

4. OUTPUT AMPLIFIER

REF. NO.	PARTS NO.	DESCRIPTION
	51684181	PC Board Assy
	51674180	PC Board
	TRANSISTORS	
Q321/Q421	51450360	2SC945LK or LP
Q322/Q422	51450360	2SC945LK or LP
Q323/Q423	50425490	2SC1636I
Q324/Q424	51450360	2SC945LK or LP
Q325/Q425	51450460	2SC1317Q
Q326/Q426	51450450	2SA719Q
	DIODES	
D321/D421	50425170	1S2473VE
D322/D422	50425170	1S2473VE
	CARBON RESISTORS	
	All resistors are rated ±5% tolerance and 1/4 watt.	
R321/R421	50570980	4.7k ohm
R322/R422	50571340	150k ohm
R323/R423	50571200	39k ohm
R324/R424	50571300	100k ohm
R325/R425	50571060	10k ohm
R326/R426	50571420	220k ohm
R327/R427	50571300	100k ohm
R328/R428	50570820	1k ohm
R329/R429	50571060	10k ohm
R330/R430	50570820	1k ohm
R331/R431	50571280	82k ohm
R332/R432	50571140	22k ohm
R333/R433	50570900	2.2k ohm
R334/R434	50571420	220k ohm
R335/R435	50570320	8.2 ohm
R336/R436	50570320	8.2 ohm
R337/R437	50570540	68 ohm
R338/R438	50570820	1k ohm
R339/R439	50570740	470 ohm
R340/R440	50570980	4.7k ohm
	CAPACITORS	
C321/C421	50554540	Elec. 1 mfd 50V
C322/C422	50554040	Elec. 10 mfd 25V
C323/C423	50554050	Elec. 10 mfd 16V
C324/C424	50554040	Elec. 10 mfd 25V
C325/C425	50554540	Elec. 1 mfd 50V
C326/C426	50543820	Dip. Mica 22 pfd 50V
C327/C427	50554490	Elec. 47 mfd 25V
C328/C428	50554490	Elec. 47 mfd 25V
C329	50554170	Elec. 100 mfd 25V
C330	50554170	Elec. 100 mfd 25V
	VARIABLE RESISTORS	
VR321/VR421	51501560	Semi-fixed, 50k ohm - B
	MISCELLANEOUS	
	51220880	Connector Socket, 10P
	51812090	Jumper

5. METER AMPLIFIER

REF. NO.	PARTS NO.	DESCRIPTION
	51684190	PC Board Assy
	51674190	PC Board
	TRANSISTORS	
Q351/Q451	51450360	2SC945LK
Q352/Q452	51450360	2SC945LK
Q353/Q453	51450360	2SC945LK
Q354, Q355	51450360	2SC945LK
	DIODES	
D351/D451	50425170	1S2473VE
D352	50422130	1N60
	CARBON RESISTORS	
	All resistors are rated ±5% tolerance and 1/4 watt.	
R351/R451	50571160	27k ohm
R352/R452	50571140	22k ohm
R353/R453	50571360	180k ohm
R354/R454	50571180	33k ohm
R355/R455	50571360	180k ohm
R356/R456	50570960	3.9k ohm
R357/R457	50570720	390 ohm
R358/R458	50570720	390 ohm
R359/R459	50571200	39k ohm
R360/R460	50570920	2.7k ohm
R361/R461	50571300	100k ohm
R362/R462	50571460	470k ohm
R363	50571060	10k ohm
R364	50570880	1.8k ohm
	CAPACITORS	
C351/C451	50554540	Elec. 1 mfd 50V
C352/C452	50554540	Elec. 1 mfd 50V
C353/C453	50546641	Dip. Tant. 0.1 mfd 35V
C354	50554040	Elec. 10 mfd 25V
	VARIABLE RESISTORS	
VR351/VR451	51501560	Semi-fixed, 50k ohm - B
	MISCELLANEOUS	
	51220880	Connector Socket, 10P
	51812090	Jumper

6. OSC PC BOARD-101

REF. NO.	PARTS NO.	DESCRIPTION
	51684220	PC Board Assy
	51674220	PC Board
	TRANSISTORS	
Q761	51450360	2SC945LK or LP
Q762	50425530	2SA733P
Q763	51450570	2SC10964ZL or
	51450580	2SC10964ZK
Q764~Q767	51450360	2SC945LK or LP
Q768	51450460	2SC1317Q
Q769	51450360	2SC945LK or LP
	DIODE	
D761	50425170	1S2473VE
	CARBON RESISTORS	
	All resistors are rated ±5% tolerance and 1/4 watt.	
R761	50571380	220k ohm
R762	50571000	5.6k ohm
R763	50571460	470k ohm
R764, R765	50570820	1k ohm
R766	50570900	2.2k ohm
R767, R768	50570820	1k ohm
R769	50570580	100 ohm
R770	50570420	22 ohm
R771~R773	50570980	4.7k ohm
R774	50571300	100k ohm
R775, R776	50571060	10k ohm
R777	50571300	100k ohm
R778	50571060	10k ohm
R779	50570580	100 ohm
	CAPACITORS	
C761	50559790	Elec. 33 mfd 16V
C762, C763	50554540	Elec. 1 mfd 50V
C764, C765	50543440	Polyst. 820 pfd 50V
C766, C767	50548300	Mylar 0.0033 mfd 50V 10%
	VARIABLE RESISTORS	
VR761~VR763	51501310	Semi-fixed, 22k ohm - B
	TRIMMER CAPACITORS	
VC761, VC762	51700180	Max. 220 pfd
	COILS	
L761, L762	50566590	Bias Trap, 3 mH
	MISCELLANEOUS	
IC761	50400890	Oscillator Unit, 100k Hz
	51220880	Connector Socket, 10P
	51220890	Connector Socket, 6P
	51812090	Jumper (2 used)
	57240420	Pin, F3 Type (5 used)

7. DOLBY DECODER

REF. NO.	PARTS NO.	DESCRIPTION
	51684230	PC Board Assy
	51674230	PC Board
	TRANSISTORS	
Q701	50424950	2SC1222E
Q702, Q703	51450360	2SC945LK
Q704	50425530	2SA733P
Q705, Q706	51450360	2SC945LK
Q707	57240991	FET, 2SK30DB
Q708	51450360	2SC945LK
Q709	50425530	2SA733P
Q710, Q711	51450360	2SC945LK
	DIODES	
D701	50425170	1S2473VE
D702	50422640	Zener, 02Z7.5A
D703, D704	50425170	1S2473VE
D705	50422130	1N60
D706	50425170	1S2473VE
	CARBON RESISTORS	
	All resistors are rated ±5% tolerance and 1/4 watt unless otherwise noted.	
R701	50570500	47 ohm
R702	50571360	180k ohm
R703	50571060	10k ohm
R704	50571300	100k ohm
R705	50571220	47k ohm
R706	50571380	220k ohm
R707	50570980	4.7k ohm
R708	50571300	100k ohm
R709	50570940	3.3k ohm
R710	50571020	6.8k ohm
R711	50571300	100k ohm
R712	50571220	47k ohm
R713	50571060	10k ohm
R714	50570960	3.9k ohm
R715	50570900	2.2k ohm
R716	50570780	680 ohm
R717	50571060	10k ohm
R718	50529970	150k ohm 2%
R719	50571160	27k ohm
R720	50571000	5.6k ohm
R721	50571060	10k ohm
R722	50571220	47k ohm
R723	50570980	4.7k ohm
R724	50529970	150k ohm 2%
R725	50570900	2.2k ohm
R726	50571060	10k ohm
R727	50571300	100k ohm
R728	50571220	47k ohm
R729	50529960	3.3k ohm 1%
R730	50570820	1k ohm
R731	50571160	27k ohm
R732	50570960	3.9k ohm
R733	50571380	220k ohm
R734	50571540	1M ohm
R735	50571590	1.8M ohm
R736	50571150	15k ohm

8. DOLBY ENCODER

REF. NO.	PARTS NO.	DESCRIPTION
R737	50571040	8.2k ohm
R738	50571060	10k ohm
R739	50571040	8.2k ohm
R740	50571180	33k ohm
R741	50571040	8.2k ohm
R742	50571320	120k ohm
R743	50571220	47k ohm
R744	50570820	1k ohm
R745	50570460	33 ohm
R746	50570500	47 ohm
R747	50570920	2.7k ohm
R748	50571150	15k ohm
R749, R750	50571400	270k ohm
R751	50529940	180k ohm 2%
R752	50571020	6.8k ohm
R753	50570820	1k ohm
	CAPACITORS	
C701	50546541	Dip. Tant. 4.7 mfd 16V
C702	50554040	Elec. 10 mfd 25V
C703	50554050	Elec. 10 mfd 16V
C704	51700810	Elec. 4.7 mfd 25V (LR)
C705, C706	50547450	Dip. Mica 220 pfd 50V
C707	50548320	Mylar 0.001 mfd 50V
C708	51700810	Elec. 4.7 mfd 25V (LR)
C709	50554050	Elec. 10 mfd 16V
C710	51700810	Elec. 4.7 mfd 25V (LR)
C711	50554050	Elec. 10 mfd 16V
C712	50554040	Elec. 10 mfd 25V
C713	50554720	Elec. 22 mfd 10V
C714	51700810	Elec. 4.7 mfd 25V (LR)
C715	51700130	Polyst. 0.0056 mfd 100V 1%
C716	51700140	Polyst. 0.027 mfd 100V 1%
C717	51700120	Polyst. 0.0047 mfd 100V 1%
C718	50554050	Elec. 10 mfd 16V
C719	50549285	Mylar 0.1 mfd 50V 5%
C720	50555540	Elec. 47 mfd 10V
C721	50554050	Elec. 10 mfd 16V
C722, C723	50549285	Mylar 0.1 mfd 50V 5%
C724	50546561	Dip. Tant. 10 mfd 16V
C725	51703000	Dip. Tant. 0.33 mfd 35V
C726	50554050	Elec. 10 mfd 16V
C727	50554540	Elec. 1 mfd 50V
C728	50549285	Mylar 0.1 mfd 50V 5%
	VARIABLE RESISTORS	
VR701	51501540	Semi-fixed, 10k ohm - B
VR702	51501510	Semi-fixed, 1k ohm - B
	COILS	
L701	50566660	Choke, 38 mH 5% (Fixed)
L702	50566550	Choke, 12 mH (Adjustable)
	MISCELLANEOUS	
	51220890	Connector Socket, 6P (2 used)
	51812090	Jumper (5 used)
	57240420	Pin F3 Type (3 used)

REF. NO.	PARTS NO.	DESCRIPTION
	51684240	PC Board Assy
	51674240	PC Board
	TRANSISTORS	
Q801	50424950	2SC1222E
Q802, Q803	51450360	2SC945LK
Q804	50425530	2SA733P
Q805, Q806	51450360	2SC945LK
Q807	57240991	FET, 2SK30DB
Q808	51450360	2SC945LK
Q809	50425530	2SA733P
Q810, Q811	51450360	2SC945LK
	DIODES	
D801	50425170	1S2473VE
D802	50422640	Zener, 02Z7.5A
D803, D804	50425170	1S2473VE
D805	50422130	1N60
D806	50425170	1S2473VE
	CARBON RESISTORS	
	All resistors are rated ±5% tolerance and 1/4 watt unless otherwise noted.	
R801	50570500	47 ohm
R802	50571360	180k ohm
R803	50571060	10k ohm
R804	50571300	100k ohm
R805	50571220	47k ohm
R806	50571380	220k ohm
R807	50570980	4.7k ohm
R808	50571300	100k ohm
R809	50570940	3.3k ohm
R810	50571020	6.8k ohm
R811	50571300	100k ohm
R812	50571220	47k ohm
R813	50571060	10k ohm
R814	50570960	3.9k ohm
R815	50570900	2.2k ohm
R816	50570780	680 ohm
R817	50571060	10k ohm
R818	50529970	150k ohm 2%
R819	50571160	27k ohm
R820	50571000	5.6k ohm
R821	50571060	10k ohm
R822	50571220	47k ohm
R823	50570980	4.7k ohm
R824	50529970	150k ohm 2%
R825	50570900	2.2k ohm
R826	50571060	10k ohm
R827	50571300	100k ohm
R828	50571220	47k ohm
R829	50529960	3.3k ohm 1%
R830	50570820	1k ohm
R831	50571160	27k ohm
R832	50570960	3.9k ohm
R833	50571380	220k ohm
R834	50571540	1M ohm

REF. NO.	PARTS NO.	DESCRIPTION		
R835	50571590	1.8M ohm		
R836	50571150	15k ohm		
R837	50571040	8.2k ohm		
R838	50571060	10k ohm		
R839	50571040	8.2k ohm		
R840	50571180	33k ohm		
R841	50571040	8.2k ohm		
R842	50571320	120k ohm		
R843	50571220	47k ohm		
R844	50570820	1k ohm		
R845	50570460	33 ohm		
R846	50570500	47 ohm		
R847	50570920	2.7k ohm		
R848	50571150	15k ohm		
R849, R850	50571400	270k ohm		
R851	50529940	180k ohm 2%		
R852	50571020	6.8k ohm		
R853	50570820	1k ohm		
	CAPACITORS			
C801	50546541	Dip. Tant.	4.7 mfd	16V
C802	50554040	Elec.	10 mfd	25V
C803	50554050	Elec.	10 mfd	16V
C804	51700810	Elec.	4.7 mfd	25V (LR)
C805	50596810	Polyst.	0.003 mfd	50V 5%
C806	50543990	Polyst.	0.0018 mfd	50V 5%
C807	50596800	Polyst.	0.0033 mfd	50V 5%
C808	51700810	Elec.	4.7 mfd	25V (LR)
C809	50554050	Elec.	10 mfd	16V
C810	51700810	Elec.	4.7 mfd	25V (LR)
C811	50554050	Elec.	10 mfd	16V
C812	50554040	Elec.	10 mfd	25V
C813	50554720	Elec.	22 mfd	10V
C814	51700810	Elec.	4.7 mfd	25V (LR)
C815	51700130	Polyst.	0.0056 mfd	100V 1%
C816	51700140	Polyst.	0.027 mfd	100V 1%
C817	51700120	Polyst.	0.0047 mfd	100V 1%
C818	50554050	Elec.	10 mfd	16V
C819	50549280	Mylar	0.1 mfd	50V 5%
C820	50555540	Elec.	47 mfd	10V
C821	50554050	Elec.	10 mfd	16V
C822, C823	50549285	Mylar	0.1 mfd	50V 5%
C824	50546561	Dip. Tant.	10 mfd	16V
C825	51703000	Dip. Tant.	0.33 mfd	35V
C826	50554050	Elec.	10 mfd	16V
C827	50554540	Elec.	1 mfd	50V
C828	50549285	Mylar	0.1 mfd	50V 5%
	VARIABLE RESISTORS			
VR801	51501540	Semi-fixed, 10k ohm - B		
VR802	51501510	Semi-fixed, 1k ohm - B		
	COILS			
L801	50566660	Choke, 38 mH 5%	(Fixed)	
L802	50566650	Choke, 23 mH	(Adjustable)	
	MISCELLANEOUS			
	51220890	Connector Socket, 6P (2 used)		
	51812090	Jumper (5 used)		
	57240420	Pin, F3 Type (3 used)		

9. MOTHER PC BOARD-102 (AMPL.)

REF. NO.	PARTS NO.	DESCRIPTION
	51684250	PC Board Assy
	51674250	PC Board
	DIODE	
D863	50425170	1S2473VE
	CARBON RESISTORS	
	All resistors are rated ±5% tolerance and 1/4 watt.	
R181/R281	50572940	3.3k ohm
R182/R282	50573080	12k ohm
R183/R283	50572680	270 ohm
R861, R862	50570760	560 ohm
R863~R865	50572760	560 ohm
R866~R868	50573060	10k ohm
	MISCELLANEOUS	
S861	51320290	Switch, Lever 4PDT
S862	51320300	Switch, Lever 6P3T
S863	51320330	Switch, Lever 8P3T
S864	51320310	Switch, Lever 4P3T
S865	51320320	Switch, Lever DP3T
	51220120	Connector Plug, 10P (6 used)
	51220100	Connector Plug, 6P (10 used)
	51812090	Jumper (32 used)

10. MOTHER PC BOARD-103 (CONTROL)

REF. NO.	PARTS NO.	DESCRIPTION
	51684350	PC Board Assy
	51674350	PC Board
D551, D552	50425500	Diode, 1S2473
D557	51430890	Diode, W03C
	51812090	Jumper (25 used)
	51220120	Connector Plug, 10P (6 used)

11. CONTROL PC BOARD-103 (FLIP-FLOP)

REF. NO.	PARTS NO.	DESCRIPTION
	51684360	PC Board Assy
	51674360	PC Board
	TRANSISTORS	
Q501~Q515	51450360	2SC945LK

12. CONTROL PC BOARD-104
(SOLENOID DRIVE)

REF. NO.	PARTS NO.	DESCRIPTION
Q517~Q520	51450360	2SC945LK
Q521	50425530	2SA733P
Q522~Q526	51450360	2SC945LK
	DIODES	
D501~D526	50425500	1S2473
D529~D533	50425500	1S2473
D534~D546	50425170	1S2473VE
D547	50425500	1S2473
D548~D550	50425170	2S2473VE
D556	51430890	W03C
	CARBON RESISTORS	
	All resistors are rated ±5% tolerance and 1/4 watt.	
R501~R503	50570940	3.3k ohm
R504~R507	50571140	22k ohm
R508~R511	50571300	100k ohm
R512~R514	50570940	3.3k ohm
R515~R518	50571140	22k ohm
R519~R522	50571300	100k ohm
R523~R525	50570940	3.3k ohm
R526~R529	50571140	22k ohm
R530~R533	50571300	100k ohm
R534~R536	50570940	3.3k ohm
R537~R540	50571140	22k ohm
R541~R544	50571300	100k ohm
R545~R547	50570940	3.3k ohm
R548~R551	50571140	22k ohm
R552~R555	50571300	100k ohm
R556~R558	50570940	3.3k ohm
R559~R562	50571140	22k ohm
R563~R566	50571300	100k ohm
R569	50571060	10k ohm
R570, R571	50571140	22k ohm
R572	50571220	47k ohm
R573	50570580	100 ohm
R574	50570740	470 ohm
R575, R576	50571140	22k ohm
R577	50570980	4.7k ohm
R578, R579	50571140	22k ohm
R580	50570980	4.7k ohm
R581	50571220	47k ohm
R582	50570980	4.7k ohm
R583, R584	50571140	22k ohm
R585	50570980	4.7k ohm
R586	50571220	47k ohm
R587	50570980	4.7k ohm
	CAPACITORS	
C501~C508	50542300	Ceramic 0.047 mfd 50V
C510~C521	50542040	Ceramic 0.01 mfd 50V
C522	50549700	Elec. 10 mfd 25V (KU)
C523, C524	50542040	Ceramic 0.1 mfd 50V
C525	50554630	Elec. 100 mfd 35V
C526	50542300	Ceramic 0.047 mfd 50V
C527	50549700	Elec. 10 mfd 25V (KU)
	MISCELLANEOUS	
	51220880	Connector Socket, 10P (2 used)
	51812090	Jumper (9 used)

REF. NO.	PARTS NO.	DESCRIPTION
	51684371	PC Board Assy
	51674370	PC Board
	TRANSISTOR	
Q603	51450360	2SC945LK
Q604, Q605	50426250	2SC1318S
Q606	50425290	2SD389P
Q607	50426250	2SC1318S
Q608	51450430	2SA720(Q)
Q609	50425290	2SD389P
Q610	51450360	2SC945LK
Q611	50426250	2SC1318S
Q612	50425290	2SD389P
Q613	50426250	2SC1318S
Q614	51450430	2SA720(Q)
Q615	50425290	2SD389P
Q616~Q618	51450360	2SC945LK
Q619	50426250	2SC1318S
Q620	50425290	2SD389P
Q621	51450360	2SC945LK
Q622	50426250	2SC1318S
Q623	51450430	2SA720(Q)
Q624	50425290	2SD389P
Q625	51450360	2SC945LK
Q626	50426250	2SC1318S
Q627	50425290	2SD389P
Q628	50426250	2SC1318S
Q630~Q635	51450360	2SC945LK
	DIODES	
D602	50425170	1S2473VE
D603	50425540	Zener, RD6.2EB 3%
D604~D606	50425170	2S2473VE
D607	51430170	U05C
D608	51430890	W03C
D609	50425170	1S2473VE
D610	50425540	Zener, RD6.2EB 3%
D611, D612	50425170	1S2473VE
D613	51430170	U05C
D614	51430890	W03C
D615~D617	50425170	1S2473VE
D618	50425540	Zener, RD6.2EB 3%
D619~D622	50425170	1S2473VE
D623	51430890	W03C
D625	50425170	1S2473VE
D626, D627	50425540	Zener, RD6.2EB 3%
D629	50425170	1S2473VE
D631~D633	50425170	1S2473VE
	RESISTORS	
	All resistors are rated ±5% tolerance, 1/4 watt and of carbon type unless otherwise noted.	
R605	50570660	220 ohm
R606	50571240	56k ohm
R607	50570580	100 ohm
R608	50571140	22k ohm
R609	50571180	33k ohm
R610	50571000	5.6k ohm
R611	50577860	2.2k ohm 1/2W
R612	50571180	33k ohm
R613	50571000	5.6k ohm
R614	50527390	Metal Film, 680 ohm 2W 10%

REF. NO.	PARTS NO.	DESCRIPTION
R615	50571300	100k ohm
R616	50571000	5.6k ohm
R617	50571060	10k ohm
R618	50571140	22k ohm
R619	50570340	10 ohm
R620	50571180	33k ohm
R621	50571260	68k ohm
R622	50570660	220 ohm
R623	50570580	100 ohm
R624	50571000	5.6k ohm
R625	50517870	1.2k ohm 1/2W
R626	50571300	100k ohm
R627	50571020	6.8k ohm
R628	50571060	10k ohm
R629	50571140	22k ohm
R630	50570340	10 ohm
R631	50571240	56k ohm
R632	50570980	4.7k ohm
R633	50571000	5.6k ohm
R634	50570660	220 ohm
R635	50571300	100k ohm
R636	50570580	100 ohm
R637	50571240	56k ohm
R638	50570980	4.7k ohm
R639, R640	50571180	33k ohm
R641	50571000	5.6k ohm
R642	50574860	1.5k ohm 1/2W
R643	50571300	100k ohm
R644	50571000	5.6k ohm
R645	50571240	56k ohm
R646	50570980	4.7k ohm
R647	50571240	56k ohm
R648	50570980	4.7k ohm
R649	50571180	33k ohm
R650	50571000	5.6k ohm
R651	50574860	1.5k ohm 1/2W
R652	50571300	100k ohm
R653	50571000	5.6k ohm
R654	50570660	220 ohm
R655	50571380	220k ohm
R656	50570580	100 ohm
R657	50571060	10k ohm
R658	50571180	33k ohm
R659	50571000	5.6k ohm
R660	50571240	56k ohm
R661	50570980	4.7k ohm
R662	50570660	220 ohm
R663	50571340	150k ohm
R664	50570580	100 ohm
R665, R666	50571060	10k ohm
R671	50571140	22k ohm
R672	50571060	10k ohm
R673	50570340	10 ohm
R676	50571140	22k ohm
R677	50571180	33k ohm
R688	50570580	100 ohm
R689	50571180	33k ohm
R691~R697	50572760	560 ohm

CAPACITORS

C602	50549770	Elec.	10 mfd	16V (KU)
C603	50549650	Elec.	0.47 mfd	25V (KU)
C604	50549700	Elec.	10 mfd	25V (KU)
C605	50549780	Elec.	22 mfd	16V (KU)
C606	50549700	Elec.	10 mfd	25V (KU)
C607	50549790	Elec.	33 mfd	16V (KU)
C608, C609	50549690	Elec.	4.7 mfd	25V (KU)
C610	50549810	Elec.	100 mfd	16V (KU)
C611	50549770	Elec.	10 mfd	16V (KU)
C613	50549790	Elec.	33 mfd	16V (KU)
C614	50554630	Elec.	100 mfd	35V
C615	50549710	Elec.	22 mfd	25V (KU)
C616	50549700	Elec.	10 mfd	25V (KU)
C617	50549770	Elec.	10 mfd	16V (KU)

MISCELLANEOUS

51220880	Connector Socket, 10P (2 used)
51812090	Jumper (9 used)

13. CONTROL PC BOARD-105 (MOTOR DRIVE)

REF. NO.	PARTS NO.	DESCRIPTION
	51684380	PC Board Assy
	51674380	PC Board

TRANSISTORS

Q941	50425530	2SA733P
Q942	50426250	2SC1318S
Q943	50424900	2SA684Q
Q944	51450360	2SC945LK
Q945~Q947	50425530	2SA733P
Q948	50424850	2SD234(O)
Q949~Q951	51450360	2SC945LK
Q952	50424910	2SC1384R
Q953	51450360	2SC945LK
Q954, Q955	50425530	2SA733P
Q956	50424850	2SD234(O)
Q957~Q959	51450360	2SC945LK
Q960	50424910	2SC1384R
Q961~Q965	51450360	2SC945LK

DIODES

D941	51430890	W03C
D943, D944	51430890	W03C
D945, D946	50425170	1S2473VE
D947	51430890	W03C
D948~D950	50425170	1S2473VE
D951	50425540	Zener, RD6.2EB 3%
D952~D955	50425170	1S2473VE

RESISTORS

All resistors are rated ±5% tolerance, 1/4 watt and of carbon type unless otherwise noted.

R941	50570980	4.7k ohm
R942, R943	50571140	22k ohm
R944	50571060	10k ohm
R945	50570980	4.7k ohm

REF. NO.	PARTS NO.	DESCRIPTION
R946	50571060	10k ohm
R947	50528320	Metal Film, 82 ohm 2W 10%
R948	50571140	22k ohm
R949	50571240	56k ohm
R950, R951	50570980	4.7k ohm
R952	50571180	33k ohm
R953	50570980	4.7k ohm
R954	50571040	8.2k ohm
R955	50571140	22k ohm
R956	50570820	1k ohm
R957	50528180	Metal Film, 22 ohm 2W
R958	50570820	1k ohm
R959	50571060	10k ohm
R960	50570940	3.3k ohm
R961	50571180	33k ohm
R962	50571000	5.6k ohm
R964	50570860	1.5k ohm
R965	50571000	5.6k ohm
R966	50574560	82 ohm 1/2W
R967	50571240	56k ohm
R968	50571180	33k ohm
R969	50570820	1k ohm
R970	50571060	10k ohm
R971	50570940	3.3k ohm
R972	50571180	33k ohm
R973	50570980	4.7k ohm
R974	50571140	22k ohm
R975	50570820	1k ohm
R976	50574560	82 ohm 1/2W
R977	50528180	Metal Film, 22 ohm 2W
R978, R979	50571240	56k ohm
R980	50570980	4.7k ohm
R981	50570960	3.9k ohm
R982	50571000	5.6k ohm
R983	50570580	100 ohm
R984	50570860	1.5k ohm
R985	50571000	5.6k ohm
R986	50571240	56k ohm
R987	50570580	100 ohm
R988	50571240	56k ohm
R989	50570980	4.7k ohm
R990	50570940	3.3k ohm
R991	50571180	33k ohm
R992	50571240	56k ohm
R993	50570980	4.7k ohm
R994	50571240	56k ohm
R995	50570980	4.7k ohm
R996	50571500	680k ohm
R997	50570820	1k ohm
R998	50571060	10k ohm
R999	50571300	100k ohm
R1000	50570820	1k ohm
R1001	50570660	220 ohm

CAPACITORS

C941	50554170	Elec.	100 mfd	25V
C942	50554630	Elec.	100 mfd	35V
C943, C944	50549690	Elec.	4.7 mfd	25V (KU)
C945	50549670	Elec.	2.2 mfd	25V (KU)
C946	50549650	Elec.	0.47 mfd	25V (KU)
C947	50549690	Elec.	4.7 mfd	25V (KU)
C948, C949	50549790	Elec.	33 mfd	16V (KU)
C950	50549790	Elec.	33 mfd	16V (KU)

REF. NO.	PARTS NO.	DESCRIPTION

VARIABLE RESISTORS

VR941	51501540	Semi-fixed, 10k ohm - B
VR942, VR943	51501510	Semi-fixed, 1k ohm - B

MISCELLANEOUS

51220880	Connector Socket, 10P (2 used)
51812090	Jumper (6 used)
57240420	Pin, F3 Type (3 used)
55531320	Heat Sink (2 used)

14. POWER SUPPLY PC BOARD-103(A)

REF. NO.	PARTS NO.	DESCRIPTION
	51684260	PC Board Assy
	51674260	PC Board

TRANSISTORS

Q901	50425270	2SD288K
Q902, Q903	50450360	2SC945LK

DIODES

D901~D904	51430170	U05C
D905~D908	51430890	W03C
D909	50425540	Zener, RD6.2EB

RESISTORS

All resistors are rated ±5% tolerance, 1/4 watt and of carbon type unless otherwise noted.

R901	50525740	1 ohm 5W Cement
R902~R904	50570900	2.2k ohm
R905	50570580	100 ohm
R906	50570900	2.2k ohm
R907	50570820	1k ohm
R908	50570980	4.7k ohm
R909	50571000	5.6k ohm
R910	50575000	5.6k ohm 1/2W

CAPACITORS

C901, C902	51700310	Elec.	2200 mfd	50V
C903	50555580	Elec.	1000 mfd	25V
C904	51700320	Elec.	4700 mfd	16V
C905	50554170	Elec.	100 mfd	25V
C906	50554040	Elec.	10 mfd	25V
C907	50554200	Elec.	100 mfd	16V

VARIABLE RESISTOR

VR901	51501510	Semi-fixed, 1k ohm - B

MISCELLANEOUS

50332950	Washer, Insulator
50332910	Plate, Insulator
57240420	Pin, F3 Type (2 used)

15. POWER SUPPLY PC BOARD-104(B)

REF. NO.	PARTS NO.	DESCRIPTION
	51684271	PC Board Assy
	51674270	PC Board
	TRANSISTORS	
Q915	50425270	2SD288K
Q916, Q917	50450360	2SC945LK
Q918	50425530	2SA733P
Q919	51450460	2SC1317Q
Q920	51450360	2SC945LK
Q921	51425530	2SA733P
Q922~Q924	51450360	2SC945LK
	DIODES	
D915~D918	51430890	W03C
D919	50425540	Zener, RD6.2EB
D920	50422130	1N60
D921	50425540	Zener, RD6.2EB
D922	51430890	W03C
D923, D924	50425170	1S2473VE
D925, D926	51430890	W03C
D927	50425170	1S2473VE
	CARBON RESISTORS	
	All resistors are rated ±5% tolerance and 1/4 watt unless otherwise noted.	
R912	50570580	100 ohm
R913	50571340	150k ohm
R914	50571140	22k ohm
R915	50570980	4.7k ohm
R916~R918	50570900	2.2k ohm
R919	50571120	18k ohm
R920	50571020	6.8k ohm
R921	50571300	100k ohm
R923	50570660	220 ohm
R924	50570840	1.2k ohm
R925	50571060	10k ohm
R926	50517891	10 ohm 1/2W
R927	50571060	10k ohm
R928	50571040	8.2k ohm
R929, R930	50571300	100k ohm
R931	50570740	470 ohm
R932	50571220	47k ohm
R933, R934	50570980	4.7k ohm
R935, R936	50571240	56k ohm
R937	50570980	4.7k ohm
R938	50570580	100 ohm
R939	50571340	150k ohm
R940	50571140	22k ohm
	CAPACITORS	

C915	50555850	Elec.	1000 mfd	50V
C916	50554630	Elec.	100 mfd	35V
C917	50554540	Elec.	1 mfd	50V
C918	51700110	Elec.	1000 mfd	35V
C919	50542300	Ceramic	0.047 mfd	50V
C920, C921	50554570	Elec.	100 mfd	10V
C922	50542300	Ceramic	0.047 mfd	50V
C923, C924	50554910	Elec.	220 mfd	10V
C925	50554540	Elec.	1 mfd	50V
C926	50554720	Elec.	22 mfd	10V
C927	50555380	Elec.	470 mfd	10V
C928	50544720	Elec.	22 mfd	10V
C929	50549710	Elec.	22 mfd	25V (KU)
C930	50549690	Elec.	4.7 mfd	25V (KU)

	VARIABLE RESISTOR	
VR915	51501510	Semi-fixed, 1k ohm - B
	RELAY	
K915	50611150	DC 24V, SPDT
	MISCELLANEOUS	
	50332950	Washer, Insulator
	50332910	Plate, Insulator

16. MICRO SW PC BOARD-104

REF. NO.	PARTS NO.	DESCRIPTION
	51684301	PC Board Assy
	51674300	PC Board
S601~S607	50446540	Switch, Micro
D651~D654	51430890	Diode, W03C

17. END SENSOR PC BOARD-101

REF. NO.	PARTS NO.	DESCRIPTION
	51685670	PC Board Assy
	51675670	PC Board
Q81, Q82	51450360	Transistor, 2SC945LK
Q83	50424910	Transistor, 2SC1384R
TH81	51431030	Thermister, 5T-31
R81	50571080	Carbon Res. 12k ohm 1/4W 5%
R82	50571020	Carbon Res. 6.8k ohm 1/4W 5%
R83	50570880	Carbon Res. 1.8k ohm 1/4W 5%
R84	50570700	Carbon Res. 330 ohm 1/4W 5%
R85, R86	50570980	Carbon Res. 4.7k ohm 1/4W 5%
R87	50570840	Carbon Res. 1.2k ohm 1/4W 5%
R88	50570980	Carbon Res. 4.7k ohm 1/4W 5%
R89	50527230	Metal Film Res. 120 ohm 1W
R90	50570760	Carbon Res. 560 ohm 1/4W 5%
R91	50571080	Carbon Res. 12k ohm 1/4W 5%
R92	50571240	Carbon Res. 56k ohm 1/4W 5%
R93	50571080	Carbon Res. 12k ohm 1/4W 5%
VR81	51501530	Var. Res., Semi-fixed 5k ohm - B
	57240420	Pin, F3 Type (3 used)

(Continued from page 7)

REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
3 - 62	*55343341	Pulley, Relay	
3 - 63	*55343290	Oil Seal	
3 - 64	*55240700	Spring, Slide Plate	
3 - 65	*55240720	Spring, Pinch	
3 - 66	*55548700	Washer, Thrust	
3 - 67	*55810450	Nut, Nylon; M3	
3 - 68	*55043791	Arm Assy, Roller; R	
3 - 69	*55343300	Stopper, R	

(Continued from page 11)

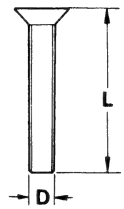
REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
4 - 97	51684521	PC Board Assy, FUSE PCB-102	U.S.A., CANADA
	51674521	PC Board	U.S.A., CANADA
	50411450	Fuse, 250V 1A (3 used)	U.S.A., CANADA
	50420910	Fuse, 250V 3A (3 used)	U.S.A., CANADA
	50421150	Fuse, 250V 5A	U.S.A., CANADA
	50412370	Holder, Fuse (14 used)	U.S.A., CANADA
	51684530	PC Board Assy, FUSE PCB-103	EUROPE, U.K., AUSTRALIA
	51674531	PC Board	EUROPE, U.K., AUSTRALIA
	50411380	Fuse, 250V 0.5AT (2 used)	EUROPE, U.K., AUSTRALIA
	50411400	Fuse, 250V 1AT	EUROPE, U.K., AUSTRALIA
	51421890	Fuse, 250V 2AT (3 used)	EUROPE, U.K., AUSTRALIA
	51421920	Fuse, 250V 4AT	EUROPE, U.K., AUSTRALIA
	51420870	Holder, Fuse (14 used)	EUROPE, U.K., AUSTRALIA
4 - 98	*55549180	Bracket, Fuse PC Board A	All except JAPAN
4 - 99	*55549190	Bracket, Fuse PC Board B	All except JAPAN

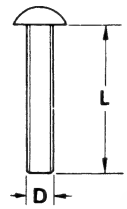
ASSEMBLING HARDWARE CODING LIST

All screws conform to ISO standards, and have crossrecessed heads, unless otherwise noted.
ISO screws have the head inscribed with a point as in the figure to the right.

FOR EXAMPLE:

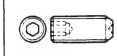
B M 3 x 6
- B — Nomenclature
- M — Metric System
- 3 — Diameter in mm (D) *
- 6 — Length in mm (L)





* Inner dia. for washers and nuts

	Code	Name	Type
MACHINE SCREW	**R**	Round Head Screw	
	P	Pan Head Screw	
	T	Stove Head Screw (Truss)	
	B	Binding Head Screw	
	F	Flat Countersunk Head Screw	
	O	Oval Countersunk Head Screw	
WOOD SCREW	**RW**	Round Head Wood Screw	
	FW	Flat Countersunk Wood Screw	
	OW	Oval Countersunk Wood Screw	
SEMS SCREW	**BSA**	Binding Head SEMS Screw(A Type)	
	BSB	Binding Head SEMS Screw(B Type)	
	BSF	Binding Head SEMS Screw(F Type)	
	PSA	Pan Head SEMS Screw(A Type)	
	PSB	Pan Head SEMS Screw(B Type)	

	Code	Name	Type
TAPPING SCREW	**BTA**	Binding Head Tapping Screw(A Type)	
	BTB	Binding Head Tapping Screw(B Type)	
	RTA	Round Head Tapping Screw(A Type)	
	RTB	Round Head Tapping Screw(B Type)	
SETSCREW	**SF**	Hex Socket Setscrew(Flat Point)	
	SC	Hex Socket Setscrew(Cup Point)	
	SS	Slotted Socket Setscrew(Flat Point)	
WASHER	**E**	E-Ring (Retaining Washer)	
	W	Flat Washer (Plain)	
	SW	Lock Washer (Spring)	
	LWI	Lock Washer (Internal Teeth)	
	LWE	Lock Washer (External Teeth)	
	TW	Trim Washer (Countersunk)	
NUT	**N**	Hex Nut	

TEAC CORPORATION 3-7-3, NAKA-CHO, MUSASHINO, TOKYO PHONE : (0422) 53-1111

TEAC CORPORATION OF AMERICA 7733 TELEGRAPH ROAD, MONTEBELLO, CALIFORNIA 90640 PHONE : (213) 726-0303

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Telefon (07131) 4801 Telex 728433 harm d

H 700/800

Datum/Date	23. Juni 1980
An/To	H/D Service-Werkstätten
Von/From	U. Nonnenmacher
Betreff/Subject	TEAC A 700/800

SERVICE INFORMATION Nr. 230680-2

Steht ein Gerät längere Zeit (2 - 3 Stunden) in Aufnahmestellung (Rec-Pause) und wird dann auf Play umgeschaltet, schaltet das Laufwerk ab.

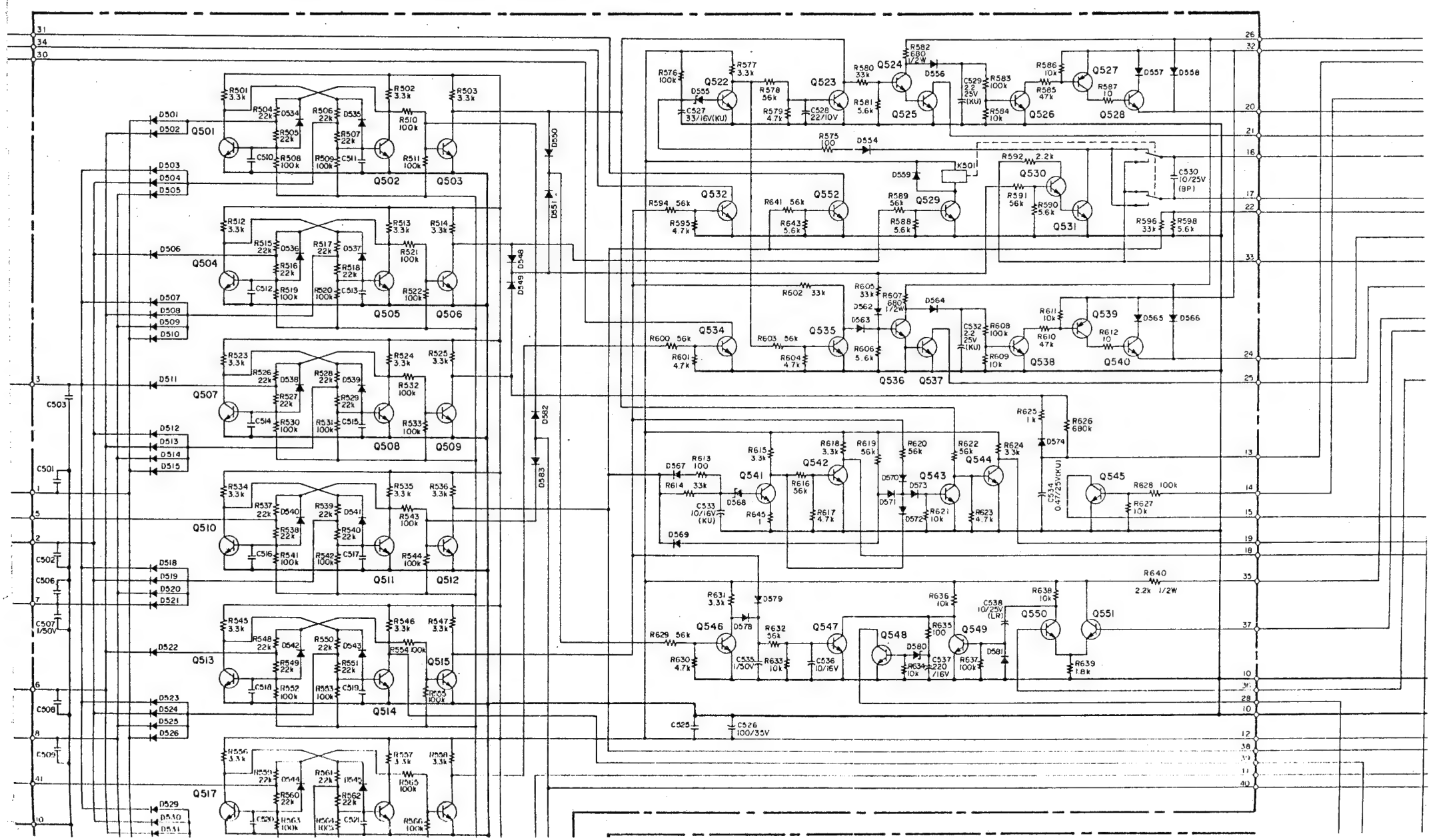
Um diesen Fehler zu beheben, müssen folgende Teile ausgewechselt werden·

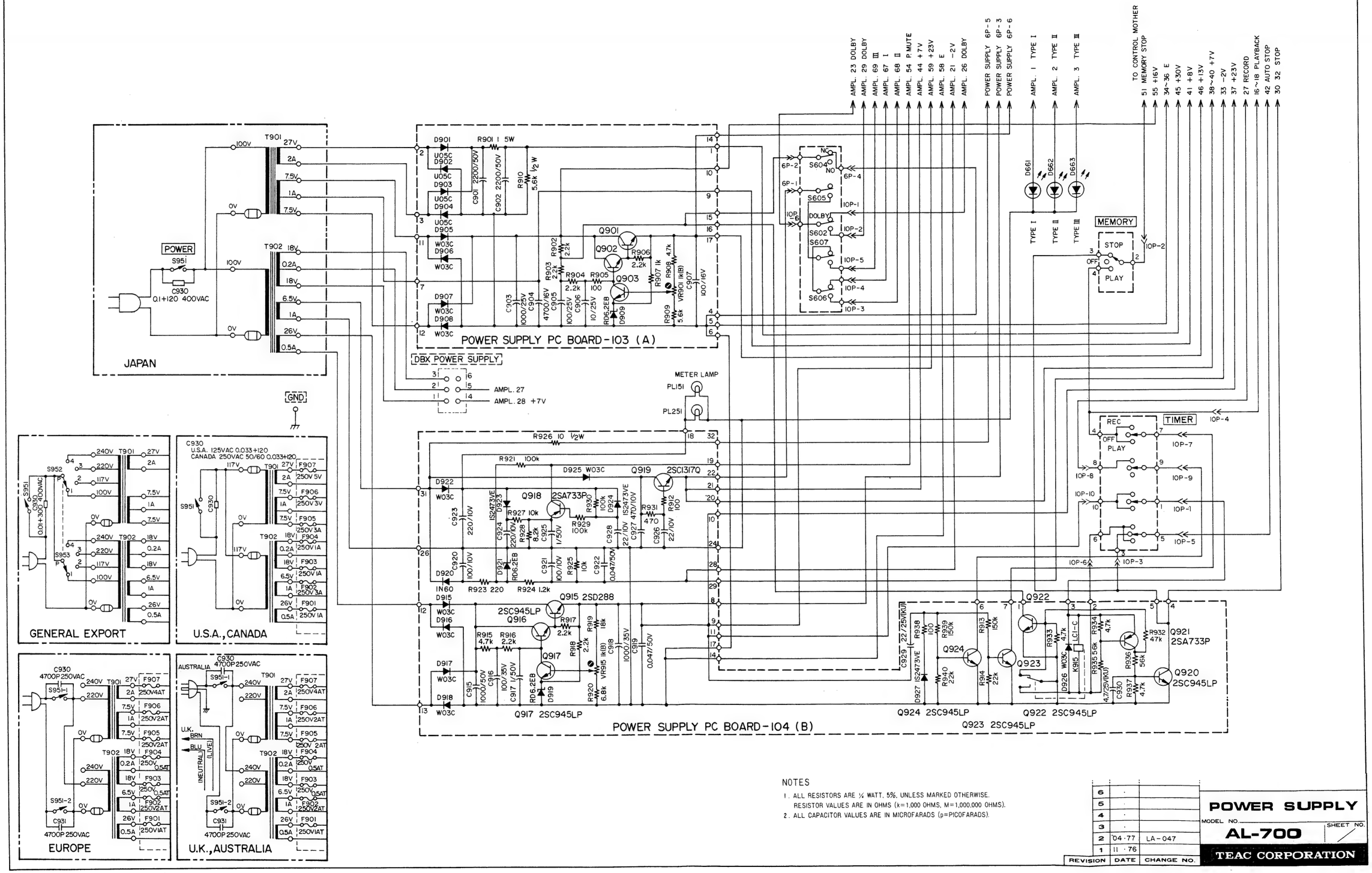
R 635	überbrücken
R 639	1,8 kOhm durch 680 Ohm ersetzen
D 381	durch Germaniumdiode 1 N 60 ersetzen TEAC Part No. 50422130

Uli Nonnenmacher
Serviceleiter

Anlage:
Schaltbildauszug

TEAC A700 , A800 LOGIC CONTROL





NOTES

1. ALL RESISTORS ARE ½ WATT, 5%, UNLESS MARKED OTHERWISE.
   RESISTOR VALUES ARE IN OHMS (k=1,000 OHMS, M=1,000,000 OHMS).
2. ALL CAPACITOR VALUES ARE IN MICROFARADS (p=PICOFARADS).

REVISION	DATE	CHANGE NO.
6	·	
5	·	
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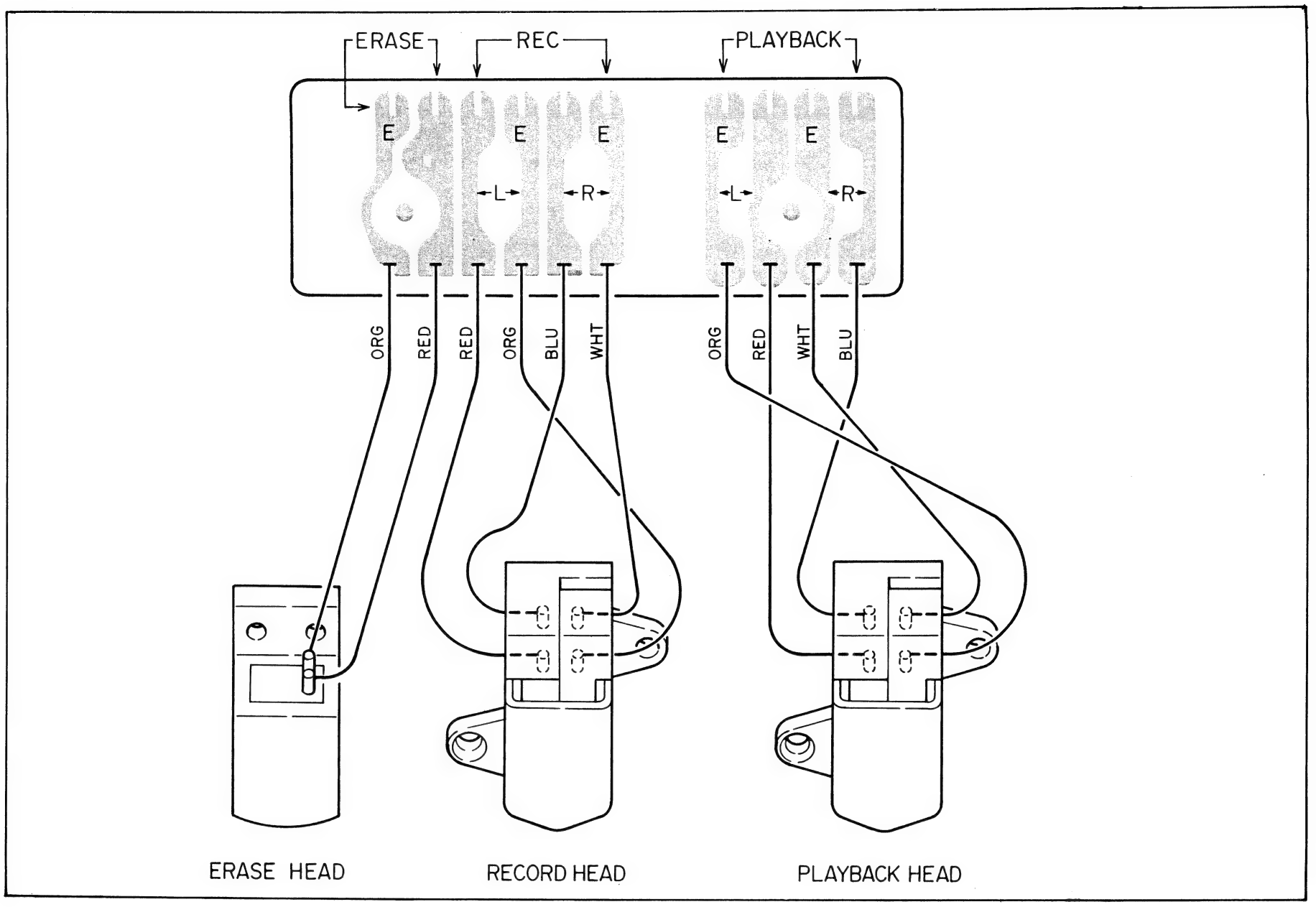
3	·	
2	04·77	LA-047
1	11·76	

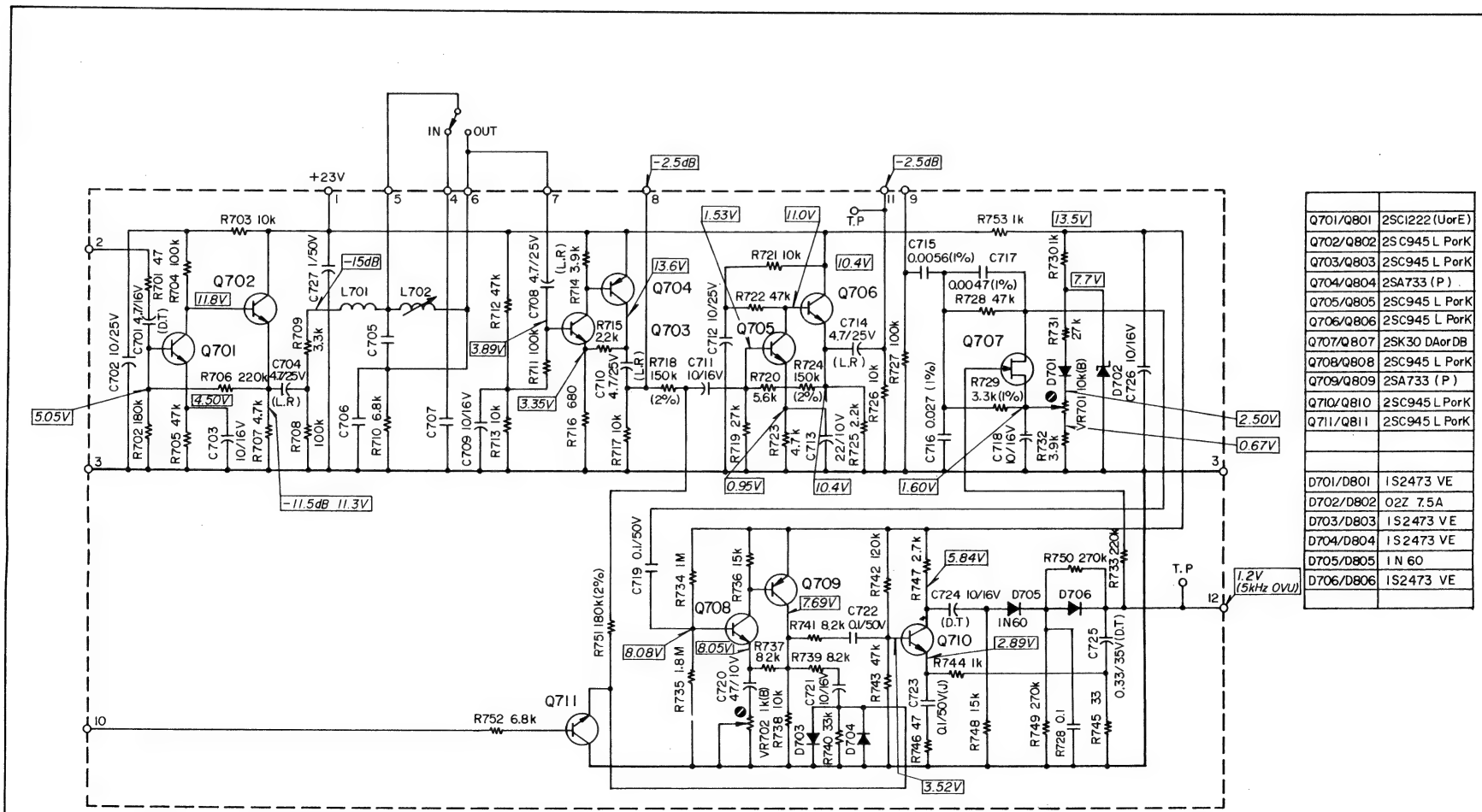
POWER SUPPLY

MODEL NO. **AL-700**

SHEET NO.

TEAC CORPORATION





	L701/L801	L702/L802	C705/C805	C706/C806	C707/C807
DECODER	L701 38mH	L702 12mH	C705 220p/50V	C706 220p/50V	C707 0.001/50V
ENCODER	L801 38mH	L802 23mH	C805 (J) 3000p/50V	C806 (J) 1800p/50V	C807 (J) 3300p/50V

Q701/Q801	2SC1222 (UorE)
Q702/Q802	2SC945 L PorK
Q703/Q803	2SC945 L PorK
Q704/Q804	2SA733 (P)
Q705/Q805	2SC945 L PorK
Q706/Q806	2SC945 L PorK
Q707/Q807	2SK30 DAorDB
Q708/Q808	2SC945 L PorK
Q709/Q809	2SA733 (P)
Q710/Q810	2SC945 L PorK
Q711/Q811	2SC945 L PorK
D701/D801	IS2473 VE
D702/D802	02Z 7.5A
D703/D803	IS2473 VE
D704/D804	IS2473 VE
D705/D805	IN 60
D706/D806	IS2473 VE

NOTES

1. ALL RESISTORS ARE ¼ WATT, 5%, UNLESS MARKED OTHERWISE. RESISTOR VALUES ARE IN OHMS (k=1,000 OHMS, M=1,000,000 OHMS).
2. ALL CAPACITOR VALUES ARE IN MICROFARADS (p=PICOFARADS).
3. SCHEMATIC DIAGRAM SHOWN FOR LEFT CHANNEL EXCEPT FOR SOME OF THE COMPONENTS.
4. DC VOLTAGES WERE MEASURED DURING RECORD PAUSE MODE.
5. SIGNAL LEVELS (dB) WERE MEASURED WITH INPUT AND OUTPUT CONTROLS AT SPECIFIED POSITION.
6. READING IN dB REFERENCED TO 0dB=0.775V.

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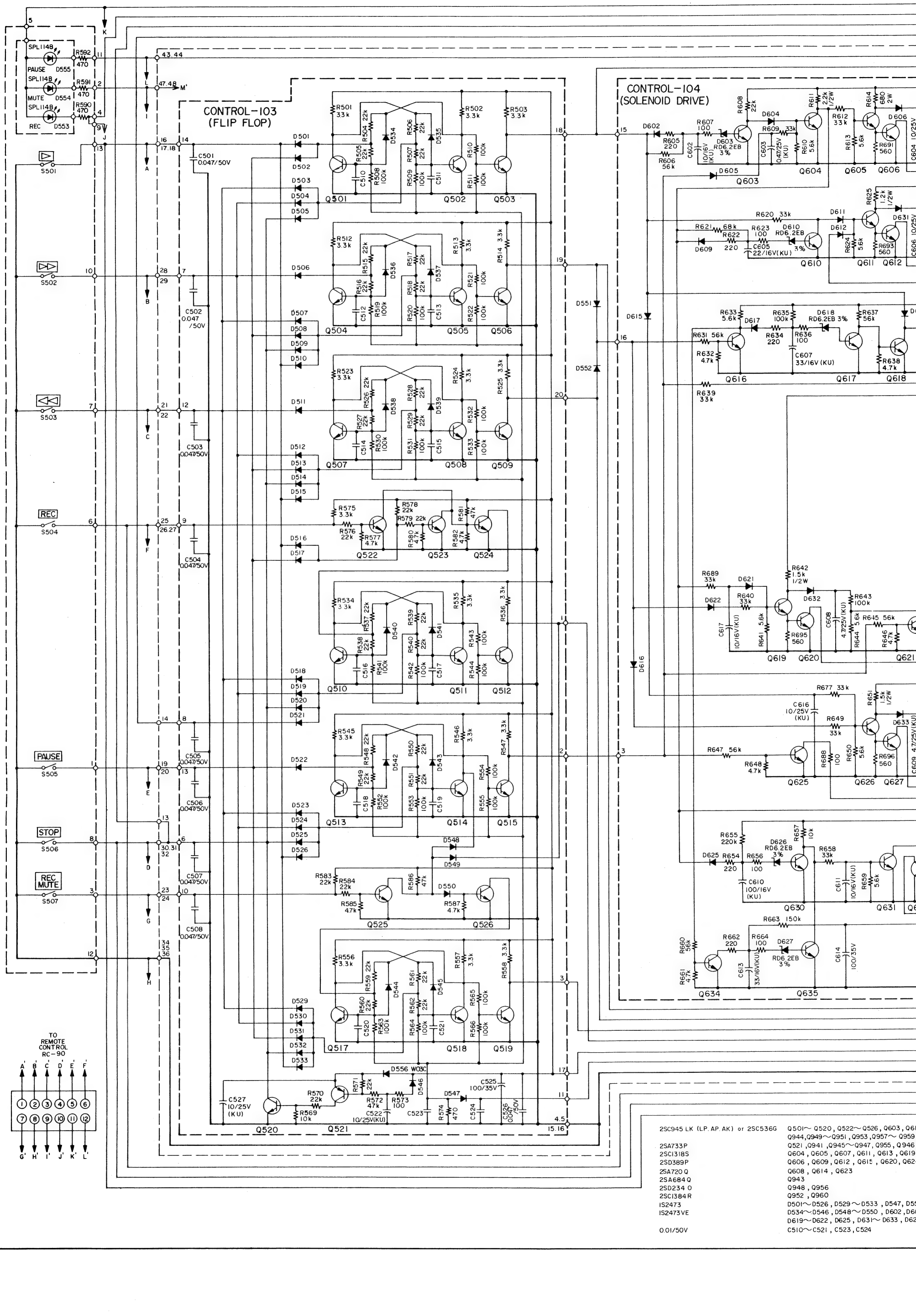
DOLBY NR

MODEL NO. **AL-700** SHEET NO.

TEAC CORPORATION


CONTROL-103
(FLIP FLOP)
CONTROL-104
(SOLENOID DRIVE)
SPL114B
PAUSE D555
MUTE D554
REC D553
R592 470
R591 470
R590 470
43.44
47.48
M'
S501
S502
S503
S504
S505
S506
S507
REC
PAUSE
STOP
REC MUTE
C501 0.047/50V
C502 0.047/50V
C503 0.047/50V
C504 0.047/50V
C505 0.047/50V
C506 0.047/50V
C507 0.047/50V
C508 0.047/50V
D501
D502
D503
D504
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D511
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Q501
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Q526
Q603
Q604
Q605
Q606
Q610
Q611
Q612
Q616
Q617
Q618
Q619
Q620
Q621
Q625
Q626
Q627
Q630
Q631
Q634
Q635
D556 W03C
D602
D603 RD6.2EB 3%
D604
D605
D606
D609
D610 RD6.2EB 3%
D611
D612
D617
D618 RD6.2EB 3%
D621
D622
D626 RD6.2EB 3%
D627 RD6.2EB 3%
D631
D632
D633
C602 10/16V (KU)
C603 0.047/25V (KU)
C605 22/16V(KU)
C607 33/16V (KU)
C608 4.7/25V(KU)
C609 4.7/25V(KU)
C610 100/16V (KU)
C611 10/16V(KU)
C613 33/16V(KU)
C614 100/35V
C616 10/25V (KU)
C617 10/16V(KU)
C522 10/25V(KU)
C525 100/35V
C526 0.047/50V
C527 10/25V (KU)
TO REMOTE CONTROL RC-90
A' B' C' D' E' F'
G' H' I' J' K' L'
2SC945 LK (LP. AP. AK) or 2SC536G
Q501～Q520, Q522～Q526, Q603, Q60
Q944, Q949～Q951, Q953, Q957～Q959
2SA733P
Q521, Q941, Q945～Q947, Q955, Q946
2SC1318S
Q604, Q605, Q607, Q611, Q613, Q619
2SD389P
Q606, Q609, Q612, Q615, Q620, Q62
2SA720 Q
Q608, Q614, Q623
2SA684 Q
Q943
2SD234 O
Q948, Q956
2SC1384 R
Q952, Q960
IS2473
D501～D526, D529～D533, D547, D55
IS2473VE
D534～D546, D548～D550, D602, D60
D619～D622, D625, D631～D633, D62
0.01/50V
C510～C521, C523, C524

CONTROL-104
(SOLENOID DRIVE)

CONTROL-105
(MOTOR DRIVE)

TO POWER SUPPLY

TO POWER SUPPLY

7V (B 20)

(A 10) 16V

38,39,40

(B 8) 6P-3 +23V

6P-5 AC6.5V

(B 32)

(A1) 30V

(A9) 8V

6P-4 E

(A4) AMPL. MOTHER 22

6P-2

6P-6 13V (A 14)

S603

S601

M601 SERVO CONTROL

PL601 PL602

PL603

Q651 PHIOIL

10P-8 D651 W03C PLAY SOL601

10P-7

10P-4 D652 W03C PAUSE SOL602

10P-6

10P-9 D653 W03C BRAKE 1 (L) SOL603

10P-3

10P-5 D654 W03C BRAKE 2 (R) SOL604

10P-1

10P-2

6P-4

6P-5

6P-3

C952 0.1/50V (K)

C951 0.1/50V (K)

(SUPPLY) M602

(TAKE UP) M603

Q81 Q82 Q83

END SENSOR-101

D615

D616

D557 W03C

D602 R605 220 R606 56k

R607 100 D603 RD6.2EB 3%

C602 10/16V (KU)

D604 R609 33k C603 0.47/25V (KU) R610 5.6k

D605

Q603 Q604

R608 22k R611 2.2k 1/2W R612 33k R613 5.6k R614 680 2W R691 560

D606 C604 10/25V (KU) R616 5.6k R615 100k

Q605 Q606 Q607

R618 R617 10k R619 22k R620 10

D607 U05C D608 W03C R692 560

Q608 Q609

R620 33k D611 D612 R624 4W 5.6k

R621 68k R622 220 R623 100 C605 22/16V (KU) D609 D610 RD6.2EB 3%

Q610

R625 1.2k 1/2W R693 560

D631 C606 10/25V (KU) R627 6.8k R626 100k

Q611 Q612 Q613

R629 R628 10k 22k R630 10

D613 U05C D614 W03C R694 560

Q614 Q615

R633 5.6k D617 R635 100k R634 220 R636 100 C607 33/16V (KU) R631 56k R632 4.7k

D618 RD6.2EB 3% R637 56k R638 4.7k

D619 D620

Q616 Q617 Q618

R639 33k

R672 10k R671 22k R673 10 R697 560

D623 W03C

Q623 Q624

R642 1.5k 1/2W R689 33k D621 D622 R640 33k C617 10/16V (KU) R641 5.6k R695 560

D632 C608 4.7/25V (KU) R643 100k R644 5.6k R645 56k R646 4.7k

Q619 Q620 Q621 Q622

R677 33k C616 10/25V (KU) R649 33k R647 56k R648 4.7k R688 100 R650 5.6k R696 560

R651 1.5k 1/2W D633 C609 4.7/25V (KU) R652 100k R653 5.6k

Q625 Q626 Q627 Q628

R655 220k D625 R654 220 R656 100 C610 100/16V (KU) D626 RD6.2EB 3% R657 10k R658 33k

C611 10/16V (KU) R659 5.6k R676 22k R665 10k C615 22/25V (KU) R666 10k D629

Q630 Q631 Q632 Q633

R663 150k R660 56k R661 4.7k R662 220 R664 100 C613 33/16V (KU) D627 RD6.2EB 3% C614 100/35V

Q634 Q635

D941 W03C C941 100/25V R941 4.7k R942 22k D954 R943 22k R944 10k R948 22k

Q941 Q942 Q943

R946 10k R945 4.7k R947 82 2W C942 100/35V D943 W03C R966 82 1/2W D944 W03C

R951 4.7k R952 33k R953 4.7k R955 22k R956 1k

Q944 Q945 Q946 Q947 Q948

R949 56k R1000 1k C947 4.7/25V (KU) R950 4.7k VR941 10k B R954 8.2k R957 22 2W(J) TP2

R958 1k C943 4.7/25V (KU) R959 10k R960 3.3k D945

Q949 R961 33k Q950 R964 1.5k VR942 1k-B Q951

R962 5.6k R965 5.6k Q952

R967 56k R968 33k C949 33/16V (KU) D955 D946 D947 W03C R976 82 1/2W

R969 1k C944 4.7/25V (KU) R970 10k D948 R971 3.3k

R973 4.7k R972 33k Q953 Q954 R974 22k Q955 R977 22 2W(J) TP3 Q956 R975 1k

R978 56k R980 4.7k Q957 R981 3.9k Q958 R982 5.6k VR943 1k-B R984 1.5k Q959 R985 5.6k Q960

R979 56k R991 33k C950 33/16V (KU)

R986 56k D949 R988 56k R990 3.3k

R1001 220 R987 100 D951 D950 C948 22/16V (KU) RD6.2EB 3%

Q961 Q962 R992 56k Q963 R983 100 Q964

R989 4.7k D952 C945 2.2/25V (KU) R993 4.7k R994 56k R995 4.7k

R996 680k D953 R997 1k C946 0.47/25V (KU) Q965 R999 100k R998 10k

M

2SC945 LK (LP. AP. AK) or 2SC536G	Q501～Q520, Q522～Q526, Q603, Q610, Q616～Q618, Q621, Q625, Q630～Q635 Q944, Q949～Q951, Q953, Q957～Q959, Q961～Q965, Q81～Q83
2SA733P	Q521, Q941, Q945～Q947, Q955, Q946, Q954
2SC1318S	Q604, Q605, Q607, Q611, Q613, Q619, Q622, Q626, Q628, Q942
2SD389P	Q606, Q609, Q612, Q615, Q620, Q624, Q627
2SA720 Q	Q608, Q614, Q623
2SA684 Q	Q943
2SD234 O	Q948, Q956
2SC1384 R	Q952, Q960
IS2473	D501～D526, D529～D533, D547, D551, D552
IS2473VE	D534～D546, D548～D550, D602, D604～D606, D609, D611, D612, D615～D617 D619～D622, D625, D631～D633, D629, D945, D946, D948～D950, D952～D955
0.01/50V	C510～C521, C523, C524

NOTES

1. ALL RESISTORS ARE ¼ WATT, 5%, UNLESS MARKED OTHERWISE. RESISTOR VALUES ARE IN OHMS (k=1,000 OHMS, M=1,000,000 OHMS).
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6	·	
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MODEL

TO POWER SUPPLY
TO POWER SUPPLY
7V (B 20)
6P-6 13V (A 14)
(B 8) 6P-3 +23V
6P-5 AC6.5V
(B 32)
6P-4 E
(A 1) 30V
(A9) 8V
(A4) AMPL. MOTHER 22
6P-2
38,39,40
(A 10) 16V
S603
S601
M601
SERVO CONTROL
PL601
PL602
PL603
Q651 PHIOIL
D651 W03C
D652 W03C
D653 W03C
D654 W03C
PLAY SOL601
PAUSE SOL602
BRAKE 1 (L) SOL603
BRAKE 2 (R) SOL604
10P-8
10P-7
10P-4
10P-6
10P-9
10P-3
10P-5
10P-1
10P-2
Q81 Q82 Q83
R90 560
R85 4.7k
TH81 5F-31
R89 120
R91 12k
R82 6.8k
R86 4.7k
R81 12k
R83 1.8k
R84 350
R87 1.2k
VR81 5k-B
R88 4.7k
R92 56k
R93 12k
TP1
TP2
TP3
END SENSOR-101
6P-4
6P-5
6P-3
C952 0.1/50V (K)
C951 0.1/50V (K)
(SUPPLY) M602
(TAKE UP) M603
D941 W03C
C941 100/25V
R941 4.7k
R942 22k
D954
R943 22k
R944 10k
R948 22k
Q941
Q942
Q943
R946 10k
R945 4.7k
R947 82 2W
C942 100/35V
D943 W03C
R966 82 1/2W
D944 W03C
R951 4.7k
R952 33k
R953 4.7k
R955 22k
R956 1k
Q944
Q945
Q946
Q947
Q948
R949 56k
R1000 1k
C947 4.7/25V(KU)
R950 4.7k
VR941 10k B
R954 8.2k
R957 22 2W(J)
TP2
R958 1k
C943 4.7/25V(KU)
R959 10k
R961 33k
R964 1.5k
Q949
Q950
Q951
Q952
D945
R960 3.3k
R962 5.6k
VR942 1k-B
R965 5.6k
R967 56k
R968 33k
C949 33/16V(KU)
D946
D955
R976 82 1/2W
D947 W03C
13V (POWER SUPPLY A 13)
R969 1k
C944 4.7/25V (KU)
R973 4.7k
R974 22k
R975 1k
Q954
Q955
Q956
R972 33k
R970 10k
D948
R971 3.3k
Q953
R977 22 2W(J)
TP3
REC LAMP (AMPL. 65)
R978 56k
R980 4.7k
R981 3.9k
R982 5.6k
R984 1.5k
VR943 1k-B
R985 5.6k
Q957
Q958
Q959
Q960
R979 56k
R991 33k
C950 33/16V(KU)
R986 56k
D949
R988 56k
R990 3.3k
Q961
Q962
Q963
Q964
R1001 220
R987 100
D951
RD6.2EB 3%
D950
C948 22/16V (KU)
R989 4.7k
D952
C945 2.2/25V (KU)
R992 56k
R993 4.7k
R994 56k
R995 4.7k
R983 100
REC MUTE (AMPL. 76)
E (POWER SUPPLY A 5)
PLAY MUTE (AMPL. 77)
REC BIAS (AMPL. 66)
COUNTER
R996 680k
D953
R997 1k
C946 0.47/25V (KU)
Q965
R999 100k
R998 10k
CONTROL-105 (MOTOR DRIVE)
AMPL MOTHER IOP-2 (MEMORY)
IOP-5 (AUTO STOP)
POWER SUPPLY B 10
POWER SUPPLY B 29
IOP-8 REC
IOP-3 STOP
IOP-4 PLAY
Q630~Q635
D615~D617
D952~D955

NOTES

1. ALL RESISTORS ARE ¼ WATT, 5%, UNLESS MARKED OTHERWISE. RESISTOR VALUES ARE IN OHMS (k=1,000 OHMS, M=1,000,000 OHMS).
2. ALL CAPACITOR VALUES ARE IN MICROFARADS (p=PICOFARADS).

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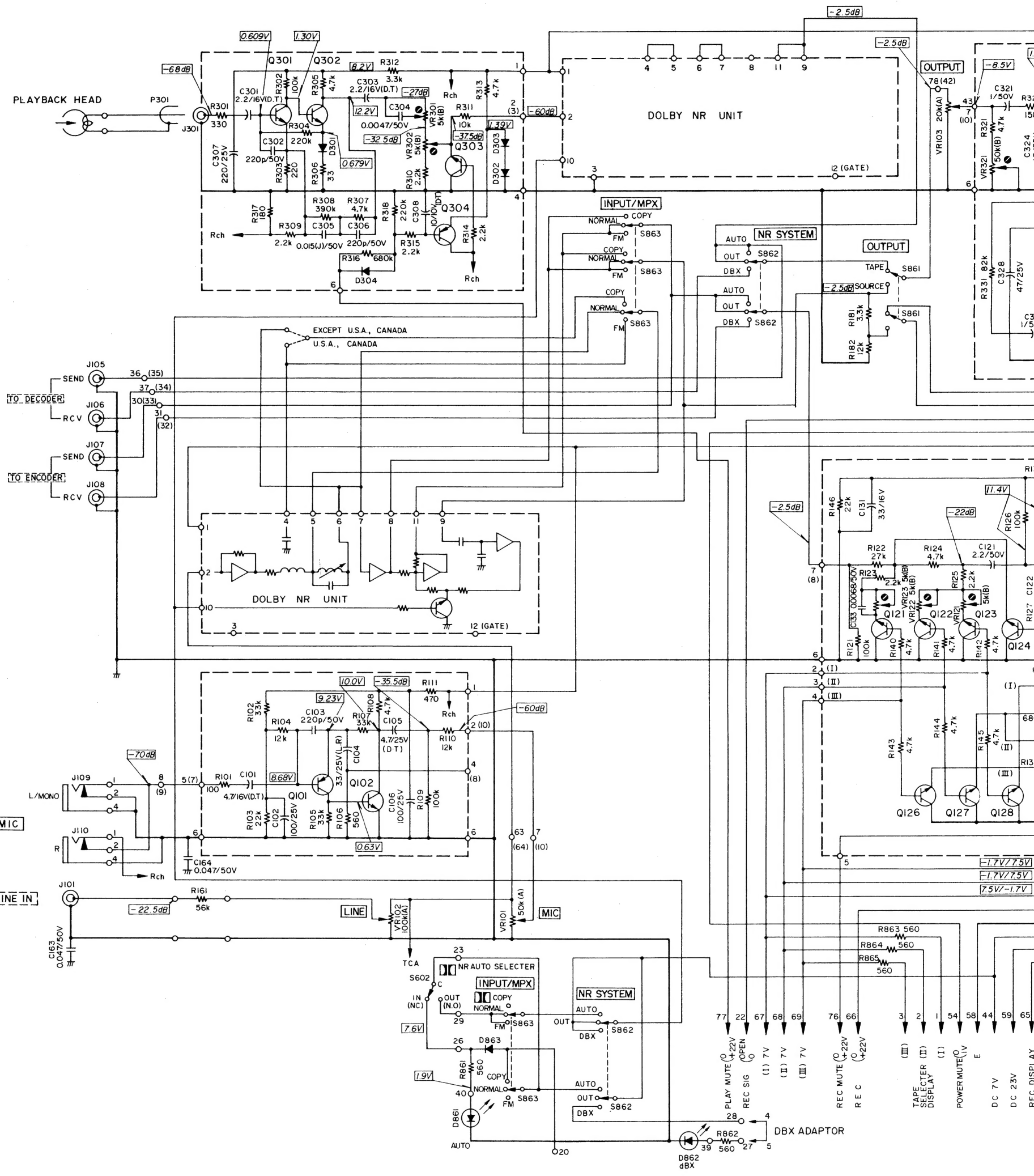
CONTROL

MODEL NO. AL-700

SHEET NO.

TEAC CORPORATION



REF. NO	DESCRIPTION
Q101	2SA 721(T)
Q102	2SC 1222(U)
Q121	2SC 945(L) P
Q122	2SC 945(L) P
Q123	2SC 945(L) P
Q124	2SC 945(L) P
Q125	2SC 945(L) P

REF. NO	DESCRIPTION
Q126	2SC 945(L) P
Q127	2SC 945(L) P
Q128	2SC 945(L) P
Q129	2SA 733(P)
Q301	2SC 1222 (U)
Q302	2SC 1222 (U)
Q303	2SC 1636(I)

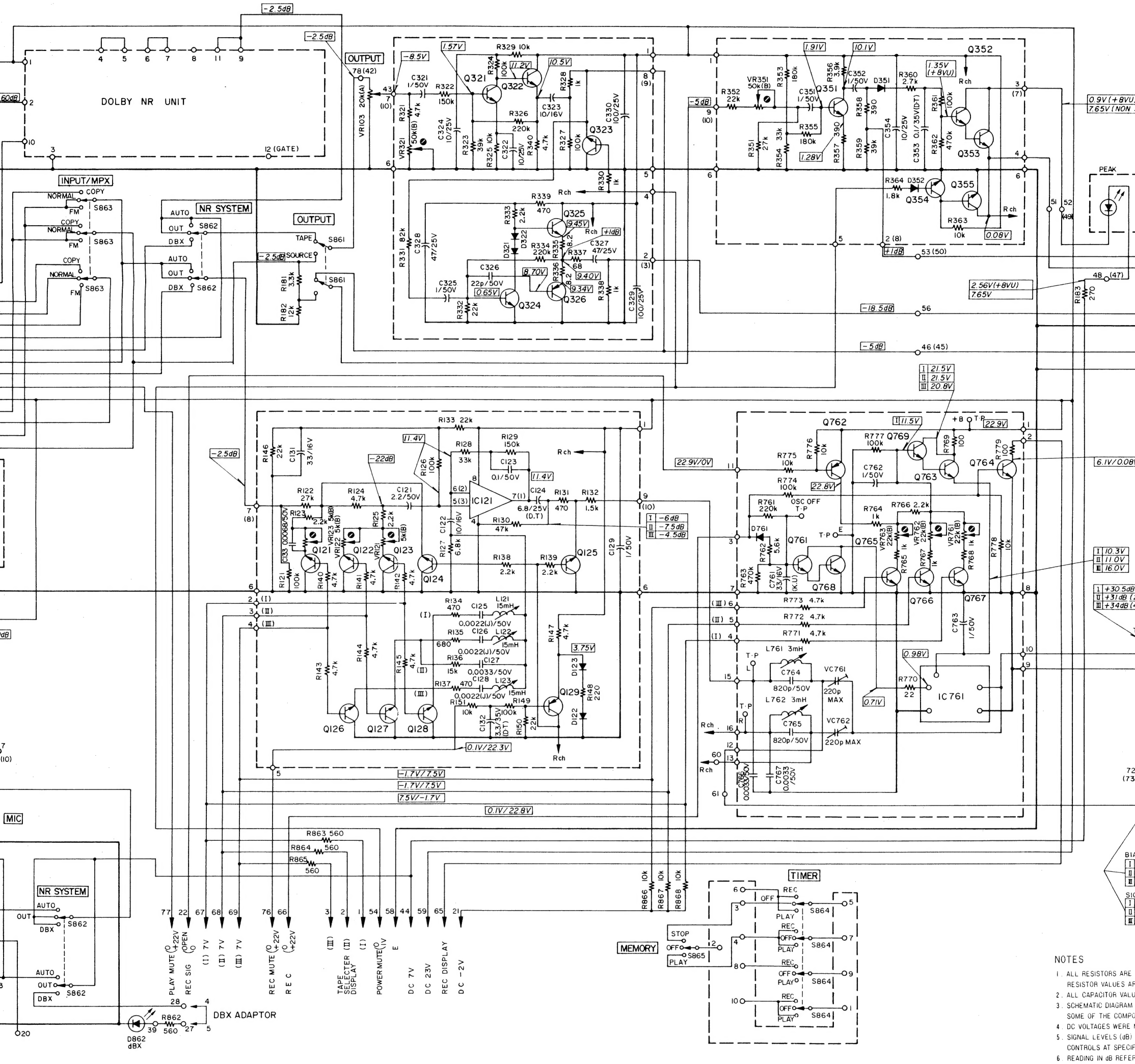
REF. NO	DESCRIPTION
Q304	2SA 733 (P)
Q321	2SC 945(L) P
Q322	2SC 945(L) P
Q323	2SC 1636 (I)
Q324	2SC 945(L) P
Q325	2SC 1317 (Q)
Q326	2SC 719(Q)

REF. NO	DESCRIPTION
Q351	2SC 945(L) P
Q352	2SC 945(L) P
Q353	2SC 945(L) P
Q354	2SC 945(L) P
Q355	2SC 945(L) P
Q761	2SC 945(L) P
Q762	2SA 733 P

REF. NO	DESCRIPTION
Q763	2SC 1096 4Z(L)
Q764	2SC 945(L) P
Q765	2SC 945(L) P
Q766	2SC 945(L) P
Q767	2SC 945(L) P
Q768	2SC 1317(Q)
Q769	2SC 945(L) P

REF. NO	DESCRIPTION
IC121	JRC4558D-F
D122	IS2473VE
D123	IS2473VE
D301	IS2473VE
D302	IS2473VE
D303	IS2473VE
D304	IS2473VE

REF. NO	DESC
D321	IS24
D322	IS24
D351	IS24
D352	IN60
D761	IS24
D762	IS24
D763	RD6.



REF. NO	DESCRIPTION
Q351	2SC 945 (L) P
Q352	2SC 945 (L) P
Q353	2SC 945 (L) P
Q354	2SC 945 (L) P
Q355	2SC 945 (L) P
Q761	2SC 945 (L) P
Q762	2SA 733 P

REF. NO	DESCRIPTION
Q763	2SC 1096 4Z(L)
Q764	2SC 945 (L) P
Q765	2SC 945 (L) P
Q766	2SC 945 (L) P
Q767	2SC 945 (L) P
Q768	2SC 1317 (Q)
Q769	2SC 945 (L) P

REF. NO	DESCRIPTION
IC121	JRC4558D-F
D122	IS2473VE
D123	IS2473VE
D301	IS2473VE
D302	IS2473VE
D303	IS2473VE
D304	IS2473VE

REF. NO	DESCRIPTION
D321	IS2473VE
D322	IS2473VE
D351	IS2473VE
D352	IN60
D761	IS2473VE
D762	IS2473VE
D763	RD6.2EB

REF. NO	DESCRIPTION
D861	SLP-114B
D862	SLP-114B
D863	IS2473VE

REVISION	DATE
6	·
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4	·
3	·
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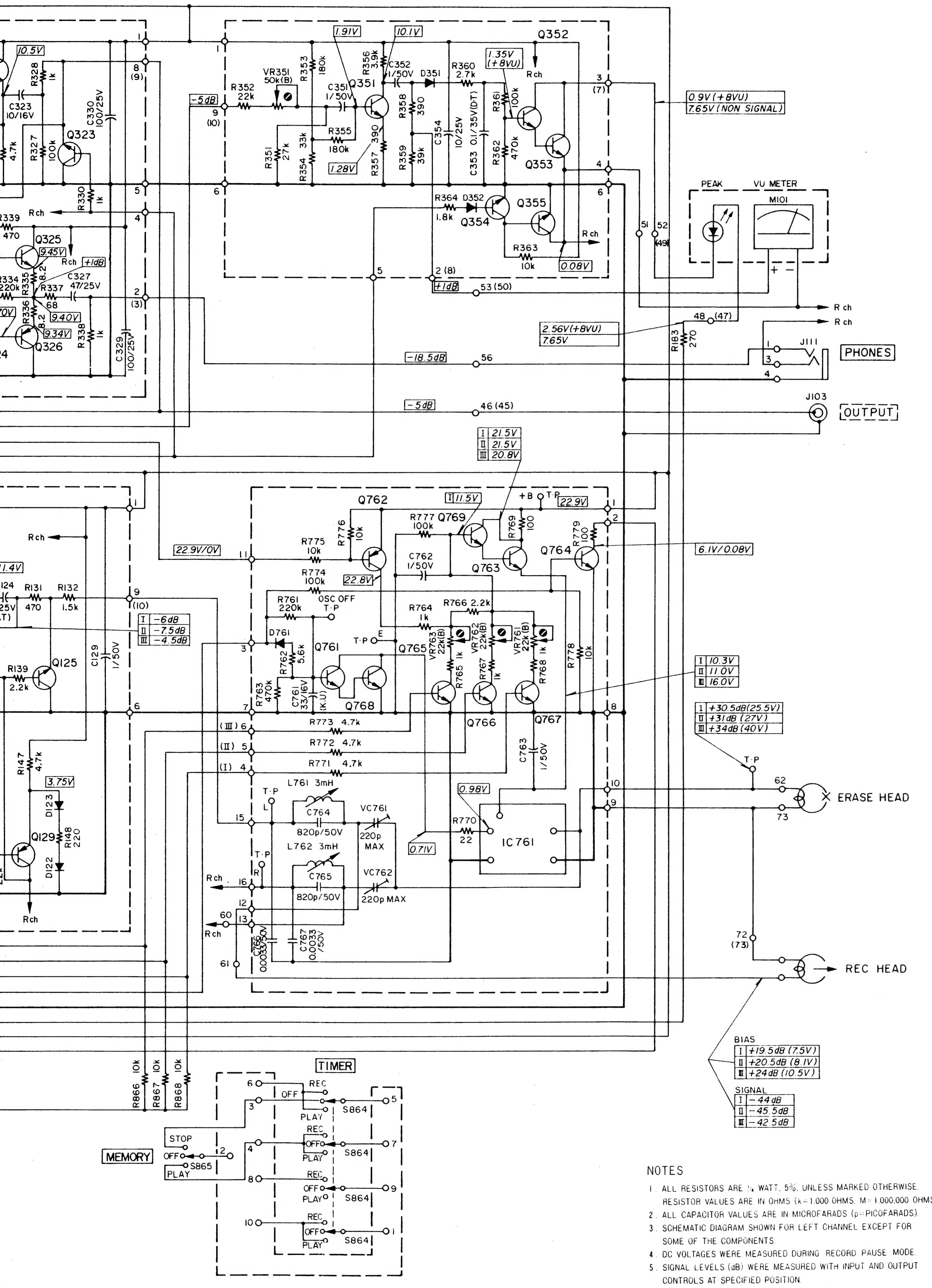

NOTES

1. ALL RESISTORS ARE ¼ WATT, 5%, UNLESS MARKED OTHERWISE. RESISTOR VALUES ARE IN OHMS (k=1,000 OHMS, M=1,000,000 OHMS)
2. ALL CAPACITOR VALUES ARE IN MICROFARADS (p=PICOFARADS)
3. SCHEMATIC DIAGRAM SHOWN FOR LEFT CHANNEL EXCEPT FOR SOME OF THE COMPONENTS.
4. DC VOLTAGES WERE MEASURED DURING RECORD PAUSE MODE.
5. SIGNAL LEVELS (dB) WERE MEASURED WITH INPUT AND OUTPUT CONTROLS AT SPECIFIED POSITION.
6. READING IN dB REFERENCED TO 0dB=0.775V.

E NO	DESCRIPTION
61	SLP-114B
62	SLP-114B
63	1S2473VE

REVISION	DATE	CHANGE NO.
6	·	
5	·	
4	·	
3	·	
2	04·77	LA-047
1	11·76	

PREAMPLIFIER

MODEL NO. **AL-700**

SHEET NO.

TEAC CORPORATION